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Factors Affecting Community Pharmacy Owners' Attitudes Toward and Likelihood to Adopt Rxsync Service(SM)

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FACTORS AFFECTING COMMUNITY PHARMACY OWNERS' ATTITUDES TOWARD AND LIKELIHOOD TO ADOPT RXSYNC SERVICE[SM]

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ABSTRACT

Factors Affecting Community Pharmacy Owners' Attitudes Toward and Likelihood to Adopt RxSync Service[SM]

Objective

There is an increased recognition of the role of pharmacists in the provision of patient care services. Therefore, understanding factors that affect pharmacists' attitudes and likelihood to implement pharmacy services is warranted. The objective of this study is to examine how community pharmacy owners' entrepreneurial and demographic characteristics, perceptions of pharmacy service characteristics (perceived benefit, perceived compatibility, and perceived complexity), workload perceptions, and the number of pharmacy services they already offer, affect their attitude toward and likelihood to adopt RxSync Service[SM], a newly developed prescription management program that can improve patient medication adherence.

Methods

This study employed a cross-sectional, descriptive design by means of an Internet survey distributed to a national convenience sample of independent community pharmacy owners. Respondents were provided with a vignette describing RxSync Service[SM]. Based on the information provided in the vignette, respondents were asked to indicate their perceptions of the characteristics of RxSync Service[SM], their attitudes toward and likelihood to adopt RxSync Service[SM]. The sample description was described and descriptive statistics and scale reliabilities

of study constructs were calculated. The study hypotheses were tested using multi-variable linear regression analysis.

Results

Respondents' self-perceived entrepreneurial characteristics, perceptions of the characteristics of RxSync Service[SM] (perceived benefit, perceived compatibility and perceived complexity) and workload perceptions for their staff pharmacists were found to be significantly related to attitudes about implementation of RxSync Service[SM]. On the contrary, respondents' self-perceived entrepreneurial characteristics, perceived complexity of RxSync Service[SM] were not found to be significantly related to their likelihood to adopt RxSync Service[SM]. However, respondents' age was significantly and negatively related to their likelihood to adopt RxSync Service[SM].

Implications/Conclusions

The results of this study suggest that a pharmacy owner or partner's entrepreneurial characteristics, perceptions of a pharmacy service, and perceptions of their pharmacist's workload may be related to their attitudes toward implementing a new pharmacy service. Creators of new pharmacy service programs can improve diffusion of these programs among pharmacies by understanding the entrepreneurial characteristics of pharmacists, helping them manage workload during the implementation of the service, promoting the benefits of these services, and helping to overcome perceived barriers.

DEDICATION

I dedicate my thesis to my parents, who have instilled in me the values and always motivated me to pursue my endeavors.

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INTRODUCTION

In 2008, investigators at the Center for Pharmaceutical Marketing and Management (CPMM) at the University of Mississippi School of Pharmacy developed RxSync Service[SM]. RxSync Service[SM] is a prescription management program that helps patients manage their medication therapies. There are three core components of RxSync Service[SM]:

- The synchronization and scheduling of refills;
- Monthly patient monitoring for adherence; and
- Providing pharmacist consultations to patients or professional recommendations to prescribers when needed.

Promotional materials for RxSync Service[SM] claim that synchronization and scheduling make it possible for pharmacists to:

- Be proactive rather than reactive about when the prescriptions will be refilled, thus taking control of the pharmacy workflow;
- Efficiently provide monthly medication management that improves compliance and enhances patient loyalty; and
- Reduce inventory costs by using just-in-time inventory management for RxSync Service[SM] prescriptions.

RxSync Service[SM] also claims to provide prescriber benefits by assisting providers with medication management for their patients and simplification of the prescription reauthorization process.

With the help of funding from Cardinal Health, CPMM was able to implement RxSync Service[SM] in five pharmacies as a way to better understand how easy or difficult it would be to implement, what the challenges to implementation would be, and what resources were required for successful implementation. As part of this project, pharmacies were provided with an implementation manual and consultation, both on-site and off-site. Additionally, the investigators assured that pharmacists had appropriate resources in place to implement RxSync Service[SM]. As part of this project, the investigators collected data concerning medication compliance rates, patient satisfaction, employee satisfaction, and financial indicators.

Overall, the data illustrated that patients and employees felt positively about RxSync Service[SM], and that medication compliance did improve as a result of the program (Banahan et al., 2011). However, the investigators observed an interesting (but perhaps unsurprising) phenomenon. Of the five participating pharmacies, only three pharmacies successfully implemented RxSync Service[SM], and even then they implemented the program with varying levels of success. Which begged the question among the developers, "after all resources for implementation were put in place, why did some pharmacies fail to successfully implement RxSync Service[SM]?" This study seeks to answer this question.

Individual characteristics may be one answer. The pharmacy services literature has looked at individual characteristics of pharmacists in the implementation of pharmacy services, but examination has been limited. It appears that the entrepreneurship literature most closely describes individual characteristics that would affect implementation of pharmacy services. Bird (1989) describes entrepreneurship as "the process of starting and/or growing a new profit making business." He also suggests that entrepreneurs have been characterized by high levels of achievement motivation, an internal locus of control and a tolerance for ambiguity. Tice (2005)

contends that principles of entrepreneurship play a role in pharmacists creating "value in emerging, innovative pharmacy-based services and products." Bonnarens (1999) found a relationship between service development and entrepreneur type.

Additionally, perceived characteristics of pharmacy-based services are also known to influence implementation of these services. Westrick and Mount (2009) examined the impact of perceived innovation characteristics of in-house immunization service on its adoption and found perceived benefit, perceived compatibility and perceived complexity of in-house immunization services to be predictors of the adoption of in-house immunization service. Thus, there is a need to examine the role of perceived characteristics of a pharmacy service on independent community pharmacy owners' attitudes toward and likelihood to adopt RxSync Service[SM]. Moreover, workload perceptions of independent community pharmacy owners, their demographic characteristics and the number of services they offer may also have an impact on their attitudes and likelihood to implement pharmacy-based services; and more specifically, RxSync Service[SM]. In this study we seek to examine how community pharmacy owners' entrepreneurial and demographic characteristics, their perceptions of the characteristics of the RxSync Service[SM], their workload perceptions, and the number of pharmacy services they offer, affect their attitude toward, and likelihood to adopt RxSync Service[SM].

LITERATURE REVIEW

In order to facilitate an in-depth background for a study examining factors affecting community pharmacy owners' attitudes toward and likelihood to implement RxSync Service[SM]; this chapter provides a discussion of how pharmacy owners' 1) entrepreneurial characteristics, 2) perceptions of the characteristics of RxSync Service[SM], 3) perceived workload, 4) the number of current pharmacy services they offer, and 5) demographic characteristics may influence attitudes toward and likelihood to adopt RxSync Service[SM]. Finally, the 6) significance of the current study will be addressed.

1. Effect of Entrepreneurial Characteristics

Research in entrepreneurship has been conducted by researchers from a wide range of disciplines including agriculture, anthropology, economics, finance, history, marketing, mass communications, mathematics, organizational theory, population ecology, psychology, sociology, among others (Bygrave & Hofer, 1991; Low & MacMillan, 1988). Owing to the diverse background of researchers, the concept of entrepreneurship has been defined in myriad ways. However, the concept of entrepreneurship has been inadequately defined and absence of an empirical definition of entrepreneurship in the literature has created an impediment in the development of the entrepreneurial theory (Bygrave & Hofer, 1991).

Bridgeman (1927) defines entrepreneurship as "a concept synonymous with a corresponding set of operations." Similar definitions of entrepreneurship were reiterated by

researchers; however, they were not considered to be good scientific and precise definitions of entrepreneurship. Subsequently, there were several attempts to develop authoritative definitions of entrepreneurship. Schumpeter (1942) describes the function of an entrepreneur as "to reform or revolutionize the pattern of production by exploiting an invention or, more generally, an untried technological possibility for producing a new commodity or producing and old one in a new way, by opening up a new source of supply of materials or a new outlet for products, by reorganizing an industry and so on." Drucker (1985) defines entrepreneurship as "an act of innovation that involves endowing existing resources with new wealth producing capacity". Bird (1989) defines entrepreneurship as "the process of starting and/or growing a new profit making business." In a modified definition of entrepreneurship, Bird (1989) extends entrepreneurship to processes that do not necessarily refer to the establishment of a new venture, but modifications to the existing organizations, products or services. Venkataraman (1997) refers to entrepreneurship as a blend of presence of lucrative opportunities and the presence of enterprising individuals. Stevenson et al. (1990) provided two definitions of entrepreneurship. According to the first, entrepreneurship is "the process of creating value by bringing together a unique package of resources to exploit an opportunity". The second definition defines entrepreneurship as "the pursuit of opportunity without regard to resources currently controlled." Bygrave & Hofer (1991) define an entrepreneur as "someone who perceives an opportunity and creates an organization to pursue it."

Out of the numerous definitions listed above, the current study will operate under the definition provided by Schumpeter (1942); that describes an entrepreneur's function as to reform the method of production by making use of an invention or an untried technological possibility to produce a new commodity or "reorganizing an industry" or an old one in a new way. This

definition closely parallels the case of RxSync Service[SM]. RxSync Service[SM] is a prescription management program that is a modified way of dispensing and managing patient prescriptions while providing some additional benefits to pharmacists, patients and prescribers.

Individual characteristics of entrepreneurs. The existing research in entrepreneurship has established a relationship between characteristics of individuals and their involvement in entrepreneurial ventures. Bird (1989) defines entrepreneurial individuals as those "who set the process in motion and who direct the early stages of new ventures." Miner (1997) contends that there is substantial evidence regarding the influence of personality patterns in an entrepreneur on success in an entrepreneurial venture. In spite of the presence of entrepreneurial opportunities for individuals, not all individuals decide to exploit those (Shane & Venkataraman, 2000). This dictates the relevance of examination of the characteristics of individuals to study the phenomenon of entrepreneurship (Bruyet & Julien, 2000).

Bird (1989) defines entrepreneurial behavior as "opportunistic, value driven, value adding, risk accepting creative activity, where ideas take the form of organizational birth, growth or transformation". Individuals who decide to exploit entrepreneurial opportunities possess entrepreneurial orientation. Entrepreneurs have also been characterized by high levels of achievement motivation, an internal locus of control and a tolerance for ambiguity (Bird, 1989). They are known to possess other individual characteristics such as risk-taking propensity and a need for achievement (Gartner, 1985). Gartner (1985) also suggests perceived differences among entrepreneurs and non-entrepreneurs based on their personality. The following section provides a brief description of each of the individual characteristics possessed by entrepreneurs.

Achievement motivation or a need for achievement within an individual continues to be an important factor in predicting entrepreneurial success (Miner, 1997). Steiner and Miner (1986) refer to individuals who possess achievement motivation as those who have "high motivation for self-achievement as those who consider achievement as a major source of satisfaction, are more concerned with achieving success than avoiding failure and who prefer situations where they can influence and control the outcomes." *Locus of control* is an aspect of an individual's personality that is illustrated by an individual's perception of control over the events in one's life. Individuals who believe that events in their life are within their personal control, actions and understanding are said to possess internal locus of control, whereas, those who believe the events in their lives are beyond their control are regarded as those with external locus of control (Inegbenebor, 2007). *Tolerance to ambiguity* refers "to the way an individual (or group) perceives and processes information about ambiguous situations or stimuli when confronted by an array of unfamiliar, complex, or incongruent clues" (Furnham, 1995). *Risk taking propensity* is defined as "the perceived probability of receiving the rewards associated with the success of a proposed situation, required by an individual before he will subject himself to the consequences associated with the failure, the alternative solution providing less reward as well as less severe consequences than the proposed situation" (Brockhaus, 1980).

Additionally, research suggests that entrepreneurs and employees differ in terms of their achievement motivation, risk taking propensity, innovativeness and, locus of control (Brockhaus, 1980). Although research pertaining to individual entrepreneurial characteristics has been recognized in several domains, a few studies have been done in pharmacy as well.

Entrepreneurial Typologies. Researchers from various disciplines have put forward different typologies to classify entrepreneurs (Bird, 1989; Gartner, 1985; Smith, 1983; Steiner & Miner, 1986). Miner (1997) developed a four-way typology of successful entrepreneurs to classify entrepreneurs based on an established group of 100 entrepreneurs. Using personality characteristics as a criterion for classification, entrepreneurs are divided into personal achievers, "super" sales people, expert idea generators and real managers. The scale developed by Miner (1997) was a self-assessment survey where respondents were asked to rate their perceived level of each of the characteristics, where a 3-point weighted scale was used for scoring. On the basis of a minimum score established for each of entrepreneur type, the entrepreneurs are classified into the four types. Table I. enumerates the four types of entrepreneurs and characteristics identified with each type of entrepreneur (Tice, 2005). Miner's four-way typology has been used as a framework to classify entrepreneurs. Bonnarens (1999) constructed an entrepreneurship characteristic scale based on four-way entrepreneurial typology suggested by Miner (1997). He conducted a national study to determine the level of patient care specialty service development and entrepreneurial characteristics present in independent community pharmacists. Based on the entrepreneurial characteristics, independent community pharmacists were classified into personal achievers, "super" sales people, expert idea generators and real managers.

Table I. Characteristics of Types of Entrepreneurs

Characteristics of Four Types of Entrepreneurs
Personal Achievers
Need for achievement
Strong commitment
Internal locus of control
"Super" Sales People
Capacity to understand others
Belief that social processes are important
Good at external relationship building
Belief in sales force
Expert Idea Generators
Build venture around new products
Involved with high-tech companies
Desire to innovate
Intelligence as source of competitive advantage
Real Managers
Desire to take charge, compare, be decisive, stand out
Desire to be corporate leader, desire for power
Positive attitude toward authority
Reference (Tice, 2005)

Entrepreneurship in pharmacy. Research pertaining to the role of pharmacists as entrepreneurs has been less extensive, however, it is supported. Young and Prichard (1985) claim pharmacists to be the most overtly entrepreneurial among all the healthcare professionals. Carol (1975) suggests that a community pharmacy that is owned and operated by a pharmacist is a traditional setting for entrepreneurial pharmacists and has a great potential for further rewards for those who rise out of employee roles. Although the area of individual entrepreneurial characteristics has not been addressed extensively in the pharmacy literature, the relevance of individual characteristics in pharmacy service implementation necessitates a review of the work done in this area.

Doucette and Jambulingam (1999) constructed a multidimensional measure of entrepreneurial orientation among community pharmacies in the United States, which consists of six dimensions of entrepreneurial orientation including proactiveness, innovativeness, risk taking, autonomy, competitive aggressiveness, and work ethic. They found that "entrepreneurial orientation within the pharmacy enables a pharmacy to augment the success of strategic decisions such as those concerned with offering new pharmacy services." They define the first five dimensions of entrepreneurial orientation using the framework provided by Lumpkin and Dess (1996). According to which, proactiveness of a pharmacy is referred to as "a pharmacy's processes aimed at anticipating and acting future needs." Innovativeness of a pharmacy is defined as "a pharmacy's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes." Risk taking is defined as "a pharmacy's proclivity to engage in risky projects and a characteristic that reflects manager's preferences for bold acts to achieve pharmacy's objectives (i.e. development of new pharmacy services)." A pharmacy's autonomy is defined as "the extent to which all employees of a pharmacy have freedom to bring forth an idea or vision and carrying it through to completion." Competitive aggressiveness refers to "a pharmacy's propensity to directly and intensely challenge its competitors to achieve entry or to achieve market position." Work ethic was defined as "the extent of the employees' attitude and morality toward work." Finally, entrepreneurial orientation of a pharmacy is defined as a pharmacy's capability to accept innovative pharmacy services. They found entrepreneurial orientation of a pharmacy to have a positive influence on a pharmacy's ability to provide innovative pharmacy services. In addition, Doucette and Jambulingam (1999) demonstrate the likelihood of innovative pharmacies to have an employee or an owner with an exposure to new

ideas and a potential to identify new areas for pharmacy services. They also recommend a study examining the role of entrepreneurial orientation in the development of new pharmacy services. Iyer and Doucette (2003) later examined the role of environmental attributes on the relationship between entrepreneurial orientation and performance in independent community pharmacies and found that entrepreneurial pharmacists are moving beyond the confines of their business and undertaking new areas of service offering.

Bonnarens (1999) conducted a national study to determine the level of patient care specialty service development and entrepreneurial characteristics present in an independent community pharmacy. He assessed the self-perceived characteristics of the decision makers in independent community pharmacies. Pharmacists' entrepreneurial characteristics were evaluated and an *entrepreneurship characteristic scale* was constructed. The four-way entrepreneurial typology suggested by Miner (1997) was used as a framework for development of the entrepreneurship characteristic scale. It was found that, the level of planning and implementation of services by pharmacists increased with an increase in the level of pharmacists' entrepreneurial characteristics.

Although some pharmacists have developed innovative services and products, many pharmacists still continue to direct their focus solely to traditional dispensing- the well established aspect of pharmacy. Tice (2005) highlighted the need to motivate pharmacists to implement other programs related to patient care. Tice (2005) contends that application of principles of entrepreneurship among individual pharmacists will result in their increased undertaking in the profession and will thus increase the value delivered by the profession. Inegbenebor (2007) also suggests that pharmacists with high internal locus of control are more

likely to assume entrepreneurial roles and adopt the pharmaceutical care philosophy. Based on this literature, the following hypotheses are proposed.

H1: The more entrepreneurial community pharmacy owners, the more positive their attitude toward implementation of RxSync Service[SM].

H2: The more entrepreneurial community pharmacy owners, the more likely they are to adopt RxSync Service[SM].

2. Effect of Perceptions of RxSync Service[SM] Characteristics

Literature provides considerable support regarding the influence of innovation (service) characteristics on decisions related to service implementation. Several theoretical frameworks have been used to test the attitudes and intentions of community pharmacists toward implementation of pharmacy services.

Among such frameworks, Roger's framework is one that lays emphasis on perceived attributes of the innovation, namely; relative advantage, compatibility, complexity, trialability and observability of the innovation. According to Roger's theory, innovations that are perceived to be better in terms of the five attributes of innovation are more rapidly adopted by the potential adopters (Rogers, 2003). The Theory of Reasoned Action (TRA) has also been used as a theoretical foundation to study the attitudes of potential adopters toward implementation of pharmacy based services. The theory suggests that an individual's behavior is governed by the individual's intention which is in turn affected by attitude toward the behavior and subjective norm. The theory of planned behavior (TPB) (an extension of theory of reasoned action) (Fishbein & Ajzen, 1975) has been used to study pharmacists' attitude and behavior toward innovation (Herbert et al., 2006). TRA was adapted to develop the technology acceptance model (TAM) (Davis, 1989). The theory transformed the attitude-related constructs in the TRA into

'perceived ease of use' and 'perceived usefulness' of the innovation. According to the theory, the construct of 'perceived ease of use' directly and indirectly (via influencing the perceived usefulness); predicts the 'behavioral intention' of an individual (Davis, 1989). Extension of TAM (ETAM) posits that in addition to perceived ease of use and perceived usefulness, other theoretical constructs such as cognitive instrumental processes (job relevance, output quality and result demonstrability) and social influence processes (subjective norm, image and voluntariness) predict individual's acceptance of a behavior. ETAM has been applied to predict pharmacists' intention to use personal digital assistants (PDA). The results of this study indicate that the ETAM could explain 69% of variance in intention to use PDAs for pharmacists owning the device (Dasgupta et al., 2009).

While there are several factors that may influence an independent community pharmacy owner's attitude to adopt a new pharmacy service (particularly RxSync Service^{SM}), the current study will concentrate on characteristics of innovation enumerated in Roger's theory to examine the impact of independent community pharmacy owners' perceived innovation characteristics on their attitudes toward implementation of RxSync Service^{SM} and their likelihood to adopt RxSync Service^{SM}.

In the current study, we conceptualize RxSync Service^{SM} as an innovation. Roger's theory defines an innovation as "an idea, practice or object that is perceived as new to an individual or another unit of adoption." Each of the perceived attributes of innovation is defined by Roger's theory of diffusion of innovations (Rogers, 2003). Relative advantage is described as "the degree to which an innovation is perceived as being better than the idea it supersedes." In terms of RxSync Service^{SM}, benefit or a relative advantage may be perceived in terms of whether the implementation of RxSync Service^{SM} would result in additional revenue, patient volume,

competitiveness with other pharmacies, improved patient health in the region where the pharmacy serves, and ultimately whether the pharmacy would serve as a role model for other pharmacies as a result of implementing RxSync Service[SM]. Compatibility refers to "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters." In terms of RxSync Service[SM], it refers to compatibility between resources such as time, staff, space, pharmacy workflow and the mission of the pharmacy. Complexity is defined as "the degree to which an innovation is perceived as relatively difficult to understand and use." In terms of RxSync Service[SM], complexity may be perceived in terms of how difficult it would be for the pharmacist to maintain regular workflow while having RxSync Service[SM] in place, whether it will be difficult to understand or obtain information regarding the service, etc. Trialability refers to "the degree to which an innovation may be experimented with on a limited basis." In terms of RxSync Service[SM], this construct may be difficult to measure because of the nature of the service (innovation) itself. Observability refers to the degree to which the results of an innovation are visible to others."

The influence of perceived innovation characteristics of a service on adoption of pharmacy based service has been illustrated by Westrick and Mount (2009), whereby they examined the impact of perceived innovation characteristics on adoption of pharmacy-based in-house immunization services. They conceptualized in-house immunization services administered by staff pharmacists as an 'innovation'. They examined the impact of perceived benefit, perceived compatibility and perceived complexity of the in-house immunization service on its adoption. Perceived benefit was found to be a significant predictor of the adoption of in-house immunization service using multi-variable regression techniques. Perceived compatibility and perceived complexity were found to be significant predictors of the adoption of in-house

immunization service using bivariate regression techniques. Based on the above literature the following hypotheses are proposed.

H3: The more positive community pharmacy owners' perception of the characteristics of RxSync Service[SM], the more positive their attitude toward implementation of RxSync Service[SM].

H4: The more positive community pharmacy owners' perception of the characteristics of RxSync Service[SM], the more likely they are to adopt RxSync Service[SM].

3. Effect of Perceived Workload

Over the years, there has been an increase in the prescription volume in United States which has created a need for a greater number of pharmacists to be available for dispensing prescriptions (Cooksey et al., 2002). Such an imbalance between the number of prescriptions to be dispensed and the number of pharmacists available to dispense prescriptions has lead to increased workload pressures among pharmacists. Concurrently, pharmacists are motivated to extend their role beyond traditional dispensing to participate in the provision of other patient care activities (Helper & Strand, 1990). However, higher workload pressures are associated with reduction in pharmacists' time available to counsel patients (Cooksey et al., 2002). In addition, higher pharmacist and pharmacy workload are associated with increased risk of dispensing a potential drug-drug interaction (Malone et al., 2007). Heavy dispensing activity is considered a significant barrier to provision of medication therapy management services among non-providers of medication therapy management services (American Pharmacists Association). Therefore, pharmacists' decisions related to implementation of new services or their attitudes toward adoption of new pharmacy services are likely to be affected by their perceptions of existing workload in a pharmacy. Thus, the current study seeks to examine existing workload in a pharmacy as a predictor of community pharmacy owners' attitudes toward and their likelihood to

adopt new pharmacy-based services. Given this literature, the following hypotheses are proposed.

H5: The less workload community pharmacy owners perceive, for themselves, their pharmacists and their technicians, the more positive their attitude toward implementation of RxSync Service[SM].

H6: The less workload community pharmacy owners perceive, for themselves, their pharmacists and their technicians, the more likely they are to adopt RxSync Service[SM].

4. Effect of Currently Provided Services

The existing pharmacy based services offered at a community pharmacy may predict independent community pharmacy owners' attitude toward and likelihood to implement other pharmacy services such as RxSync Service[SM]. In addition, favorable attitudes of independent community pharmacy owners toward RxSync Service[SM] may actually be positively related to their likelihood to adopt RxSync Service[SM]. Doucette et al. (2006) examined the mix of pharmacy services offered at different community pharmacy practices and determined the factors associated with a community pharmacy offering pharmacy services. They found an association between pharmacy services being offered and innovativeness of a pharmacy. Doucette and Jambulingam (1999) found a relationship between a pharmacy's entrepreneurial orientation and provision of services such as specialized compounding, health risk assessment and diabetes care management. A pharmacy offering traditional dispensing only, may not be entrepreneurially oriented to implement any pharmacy-based service. Thus, the existing pharmacy-based services may be an indicator of entrepreneurial orientation in a pharmacy, and thus may influence community pharmacy owners' attitudes toward and likelihood to adopt of additional pharmacy-based services (RxSync Service[SM]). Based on this literature the following hypotheses are

proposed.

H7: The number of current pharmacy services offered at the independent community pharmacy is positively related to independent community pharmacy owners' attitude toward implementation of RxSync Service[SM].

H8: The number of current pharmacy services offered at the independent community pharmacy is positively related to independent community pharmacy owners' likelihood to adopt RxSync Service[SM].

5. *Effect of Demographic Characteristics*

In addition to entrepreneurial characteristics of the pharmacists, demographic characteristics of independent community pharmacy owners may influence their attitudes toward and their likelihood to adopt RxSync Service[SM]. There is evidence to suggest that formal education has a positive impact on entrepreneurship. Education is also known to distinguish more successful entrepreneurs from those who are less successful (Bird, 1989). Bird (1989) contends that the younger the age at which an individual enters into an entrepreneurial career, the higher their motivation level and the better their chances to last longer as entrepreneurs. Additionally, individual abilities and motivation are affected by race, gender, and ethnic background which ultimately affect entrepreneurial performance (Bird, 1989). Crant (1996), in a study concerning entrepreneurship among students, found that gender, education level and entrepreneurial parentage are important predictors that have a significant positive influence on entrepreneurial intentions. Moreover, studies have examined attitudes, intentions, likelihood of pharmacists to adopt pharmacy based services while taking demographic characteristics of the practitioner into consideration to have a better understanding of the characteristics of the study sample and provide a description of the study population. Given this literature, we seek to determine the role of age, gender, and race of the pharmacist on their attitudes toward and

likelihood to adopt RxSync Service[SM].

RQ1: Are independent community pharmacy owners' demographic characteristics (e.g., age, gender, and race) related to their attitudes toward implementation of RxSync Service[SM]?

RQ2: Are independent community pharmacy owners' demographic characteristics (e.g., age, gender, and race) related to their likelihood to adopt RxSync Service[SM]?

6. Study Significance

Efficient dispensing has always been the primary focus of community pharmacies in United States (Christensen & Farris, 2006). However, a gradual transition in the pharmacy profession's focus from the product to the patient has taken place over the past few decades. The pharmacist's role is increasingly being recognized to include the provision of a variety of patient care services such as diagnostic screening, patient counseling and education, pain management, development of dispensing services, domiciliary services, immunization programs, medication therapy management services and many more. Also, most stakeholders of the pharmacy profession would agree that the future of the profession depends on the implementation of pharmacy services by pharmacists. Thus, there is a need for pharmacists to increase their dispensing efficiency and free themselves to be involved in other non-dispensing patient centered services such as patient counseling and disease state management.

The current study will aid in identifying factors affecting independent community pharmacy owners' attitudes toward and likelihood to adopt RxSync Service[SM]. Identification of these factors may provide a background to formulate better marketing strategies for RxSync Service[SM] which may ultimately result in successful implementation of the service. The study results may also apply to implementation of other pharmacy-based services, taking other service specific issues into consideration and ultimately aid in formulating target strategies leading to

successful implementation of these services. That being said; RxSync Service[SM] provides a good stimulus for testing the factors that may affect adoption of a pharmacy-based service. Because it requires minimal financial and resource input, and actually is purported to ease the pharmacists' workload, this service may actually be a good "litmus test" for owners' willingness to take on a new service.

The study findings may also be useful to pharmacists who want to understand their own entrepreneurial characteristics and identify the weaknesses and barriers that may prohibit them from advancing their practices. As such they can identify resources that will help them implement services such as finding the right support staff. Finally, this study seeks to expand the literature in pharmacy services entrepreneurship.

METHODS

Design

This study employed a cross-sectional, descriptive design by means of an Internet survey which was distributed to a national convenience sample of independent community pharmacy owners/partners.

Sample

Sample description. A national convenience sample of independent community pharmacy owners, only, was used to test the hypotheses of this study. Independent community pharmacy owners/partners provide the sample frame for this study as they are most likely to be making pharmacy service implementation decisions for their pharmacy. For the purpose of this study, an independent community pharmacy is defined as "a single store with a sole proprietor or may consist of several stores (generally less than four stores) owned by an individual or a small group" (pharmacist.com).

Sample size. This study was analyzed using multi-variable linear regression and logistic regression. G*Power (a power analysis program) was used to determine the estimate of sample size for multi-variable linear regression analysis using a medium effect size (0.15), $\alpha = 0.05$ at power = 0.90. Based on these parameters, the minimum number of respondents required for hypotheses testing using multi-variable linear regression is 116. Hosmer and Lemeshow

recommend overall sample sizes greater than 400 for logistic regression (Hair et al. 2010). Moreover, for logistic regression analysis, not only the overall sample size but the sample size per group of the dependent variable is critical. The dependent variable, likelihood to adopt RxSync Service^{SM} contains two groups. Given there are five independent variables and consequently six estimated parameters for regression; the recommended sample size for each group is 10 subjects per estimated parameter, thus a sample size of 120 respondents was required for hypothesis testing using logistic regression.

Sample source. A national convenience sample of independent community pharmacy owners/partners was recruited from a national online panel of community pharmacists provided by a healthcare marketing research company (Delta Marketing Dynamics).

Measures

Demographics. The following demographic and organizational characteristics associated with the independent community pharmacy owners were collected.

- Position in the pharmacy (to screen for owners/partners)
- Years of actively practicing pharmacy
- Length of time as an owner/partner
- Number of stores owned
- Extent to which the owner is a key decision maker
- Prescription volume
- Full-time-equivalent (FTE) pharmacists
- FTE pharmacy technicians
- Distribution of dispensing, counseling, and administrative activities
- Degrees earned
- Year graduated with last professional pharmacy degree
- State in which practice is located
- Race/ethnicity
- Age
- Gender

Entrepreneurial characteristics. Self-perceived entrepreneurial characteristics of independent community pharmacy owners were determined using a scale developed by Bonnarens (1999). Bonnarens (1999) developed a scale to measure the level of entrepreneurial characteristics possessed by decision makers in independent community pharmacies which was adapted from the work of Miner (1997). Miner developed a four-way psychological typology of successful entrepreneurs, where entrepreneurs were categorized into personal achievers, super salespersons, real managers and expert idea generators.

Bonnarens' entrepreneurial characteristics scale was developed based on the scale development framework provided by Churchill (1979). In accordance to which, the domain of the construct was specified, a sample of items was generated, data was collected, the measures were purified and the reliability and validity of the scale was determined. Bonnarens (1999) used this scale in a self-administered questionnaire whereby respondents were provided with statements regarding entrepreneurial characteristics and asked to rate their perceived level of agreement to each of the statements. Scores on each statement were obtained by using a 7-point Likert-type scale. The value of Cronbach's alpha, a measure of internal reliability of the scale, was found to be 0.81. Bonnarens' entrepreneurial characteristics scale was used in the current study, whereby respondents were provided with a set of statements related to specific personal characteristics and asked to rate the degree to which they relate to each statement using a 7-point Likert-type scale, where, 1 = "does not describe me at all" and 7 = "describes me perfectly".

Description of the vignette. Respondents were provided with a vignette describing RxSync Service[SM]. The vignette provided information about the core components of RxSync Service[SM], the benefits to the prescriber, pharmacist and patients; and the resources required for implementation of RxSync Service[SM].

Perceived attributes of RxSync Service[SM]. Rogers' characteristics of innovation were used to examine the perceptions of RxSync Service[SM] (innovation) among the decision makers in an independent community pharmacy. Respondents were asked about the extent to which their practice would benefit from providing RxSync Service[SM] in various contexts on a scale of 1 to 5, where 1 = "would be no benefit" and 5 = "would be extremely beneficial". Respondents were also asked to indicate the extent to which RxSync Service[SM] fits in their existing practice site on a scale of 1 to 5, where 1 = "not at all a barrier" and 5 = "significant barrier" (perceived compatibility). According to the aforementioned perceived compatibility measure, a significant barrier was synonymous to less compatibility of RxSync Service[SM] with their existing practice. In addition, respondents were asked to indicate their best response for a set of questions regarding complexity of RxSync Service[SM] in certain situations on a scale of 1 to 5, where 1 = "not at all difficult" and 5 = "extremely difficult". These measures of perceived attributes of RxSync Service[SM] were adopted from Westrick and Mount (2009), whereby they employed a set of questions related to perceived benefit of in-house immunization services, perceived level of compatibility between the in-house immunization services and the pharmacy, and perceived level of complexity of in-house immunization services. This set of questions was adapted in the context of the current study to obtain perceptions of decision makers/ independent community pharmacy owners/partners in a pharmacy regarding implementation of RxSync Service[SM].

Studies conducted in domains other than pharmacy have revealed problems with measurement of observability and trialability (Rogers' characteristics of innovation). The possible reasons include; difficulty in differentiating between the two constructs and consideration of the two as a single concept by some respondents (Moore & Benbasat, 1991). Therefore, these two variables were not measured in this study.

Workload perception. Workload perception of independent community pharmacy owners was determined to examine their affect on study outcomes. Respondents were asked to rate the level of workload for themselves, their staff pharmacists and pharmacy technicians; where the response categories for perceived workload included 'excessively low', 'low', 'about right', 'high' to 'excessively high'.

Current pharmacy services. In order to generate more revenue and provide better patient care, community pharmacies are moving toward offering patient centered services. Pharmacy based services offered at independent community pharmacies may influence independent community pharmacy owners' attitudes toward implementation of RxSync Service[SM]. The likelihood of independent community pharmacy owners to adopt RxSync Service[SM] may also be affected by the existing services offered at an independent community pharmacy. The relationship between the number of current pharmacy services offered and attitudes and likelihood of independent community pharmacy owners respectively, was determined.

Respondents were provided with a list of pharmacy based services offered at independent community pharmacies and asked to indicate whether they offer the services mentioned in the list in addition to "others". The pharmacy services literature was used to develop a pharmacy services checklist.

Attitudes toward implementation of RxSync Service[SM]. Based on the information provided in the vignette, the respondents were asked to complete a set of items to assess their attitudes about RxSync Service[SM]. Respondents rated a number of comments using a 7-point Likert-type scale where 1 = "strongly disagree", 7 = "strongly agree". Bonnarens (1999) employed a set of questions to obtain attitudes of decision makers in a pharmacy regarding the development of

patient care specialty services. This set of questions was adapted in the context of the current study to obtain attitudes of decision makers in a pharmacy regarding RxSync Service[SM].

Likelihood to adopt RxSync Service[SM]. Based on the information provided in the vignette, respondents were also asked to indicate their likelihood to adopt RxSync Service[SM]. Using a 5-point Likert scale, where 1 = "extremely unlikely" 2 = "unlikely" 3 = "Neutral" 4 = "Likely" 5 = "Extremely likely", respondents were asked to indicate their likelihood to adopt RxSync Service[SM] in their respective pharmacies.

Familiarity with RxSync Service[SM] or similar service. Respondents were asked about their familiarity with RxSync Service[SM] or any other similar service. They were asked to indicate whether they have 'not heard', 'heard but not adopted' or 'adopted' RxSync Service[SM] or any other similar service.

Social desirability bias. Because respondents were asked to self-report their entrepreneurial characteristics, social desirability bias was expected. Therefore, responses of responding pharmacists were assessed for the presence of any social desirability bias using Marlowe Crowne social desirability scale (Strahan & Gebrasi, 1972).

Data Collection

The survey was programmed using Qualtrics, a web-based tool used for designing and distribution of the survey over the Internet. Before pre-testing the questionnaire (Appendix B), an exemption or an approval from the University of Mississippi's Institutional Review Board (IRB) was obtained. The questionnaire was first pre-tested among graduate students at the Department of Pharmacy Administration, University of Mississippi School of Pharmacy for the purpose of evaluating and refining the clarity, readability and understandability of items.

Additionally, respondents were asked to determine the length of time needed to complete the questionnaire. The questionnaire was then sent to be pre-tested by local pharmacy owners; however, it was not successful as no responses were obtained. Any changes that were suggested in the pretest were incorporated. Because, no major changes were made to the questionnaire as a result of pretesting procedures, no amendment was submitted to the IRB for approval.

For the main study, an invitation email stating the purpose of the study (Appendix A) containing a link to the final version of the questionnaire (Appendix B) was sent to a national convenience sample of independent community pharmacy owners/partners via a healthcare marketing research company. The survey link remained available until an adequate number of independent community pharmacy owners/partners completed the survey.

Data Management

Data for responses from independent community pharmacy owners/partners were obtained in the form of PASW file (*.SAV). Since "attitude toward RxSync Service^{SM}" was one the dependent variables in the study, responses containing missing values for this variable were eliminated. There were five responses containing missing values on social desirability bias responses; however, those respondents were not excluded from the study considering that social desirability bias is not one of the main outcomes of the study. Data was then ready for analysis using Statistical Package for the Social Sciences IBM (SPSS®) Version 18.0 for Windows®.

Data Analysis

Sample description and descriptive statistics. The description of the sample was provided using demographic and organizational variables discussed previously by calculating

appropriate frequencies, means and percentages. Descriptive statistics, including means and standard deviations, was calculated for all measures. Scale reliabilities of all study constructs were also calculated using Cronbach's alpha. Social desirability bias was correlated with all study measures, but of particular concern were entrepreneurial characteristics and workload perceptions.

Hypothesis testing. For the purposes of hypothesis testing, hypotheses were grouped into two study models. Study model 1 (Figure I) includes hypotheses 1, 3, 5, and 7; whereby the dependent variable is attitude toward implementation of RxSync Service[SM]. Because the dependent variable in RQ1 is attitude toward RxSync Service[SM], RQ1 was also included in study model 1. Study model 2 (Figure II) includes hypotheses 2, 4, 6, and 8; whereby the dependent variable is likelihood to adopt RxSync Service[SM]. Because the dependent variable in RQ2 is likelihood to adopt RxSync Service[SM], RQ2 was also included in study model 2.

Study model 1 was tested using multi-variable linear regression. For testing study model 1, mean score on entrepreneurial characteristics of the independent community pharmacy owners, demographic characteristics, workload perceptions, perceived characteristics of RxSync Service[SM] and current pharmacy services offered by independent community pharmacies were entered in the regression equation (independent variables) to determine their ability to predict independent community pharmacy owners' attitudes toward implementation of RxSync Service[SM] (dependent variable).

Study model 2 was tested using binary logistic regression analysis. Simultaneous estimation logistic regression allows for evaluation of the contribution made by each predictor over and above that of all other predictors in the model. For testing study model 2, mean score of entrepreneurial characteristics of the independent community pharmacy owners, demographic

characteristics, workload perceptions, perceived characteristics for RxSync Service[SM] and current pharmacy services offered by independent community pharmacies were entered in the regression equation (independent variables) to determine their ability to predict likelihood of independent community pharmacy owners to adopt RxSync Service[SM] (dependent variable).

Before conducting multiple regression procedures, summated scales were created for each variable to facilitate regression procedures and correlations among all variables were calculated. Data was examined for violations of linearity, constant variance of the error term (homoscedasticity), independence of error terms, and normality of the error term distribution. The first three assumptions were examined with a scattered plot of studentized residuals versus predicted values. Normality was assessed by examining normal probability plots of the residuals (Hair et al., 2010).

Data was screened for residual outliers by plotting standardized residuals for each case and identifying standardized residuals of more than 3.3 or less than -3.3 (Tabachnick & Fidell, 2007). Finally, a correlation matrix described above was examined for multicollinearity (correlations of .90 and above according to Hair et al. (2010), followed by calculations of tolerance and variance inflation factor (VIF) to detect instances of multicollinearity (Hair et al., 2010). All hypotheses were tested at an a priori alpha level of 0.05.

Study Models

Figure I. Study Model 1

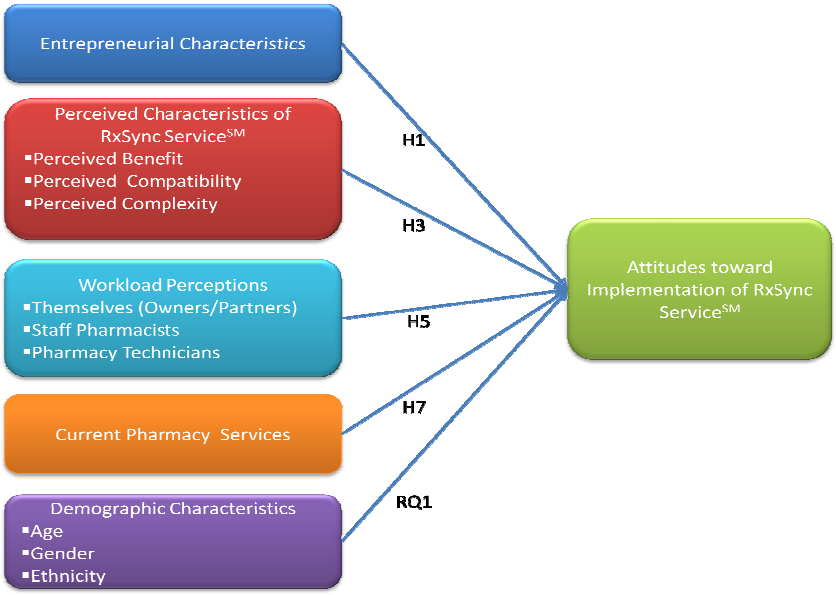
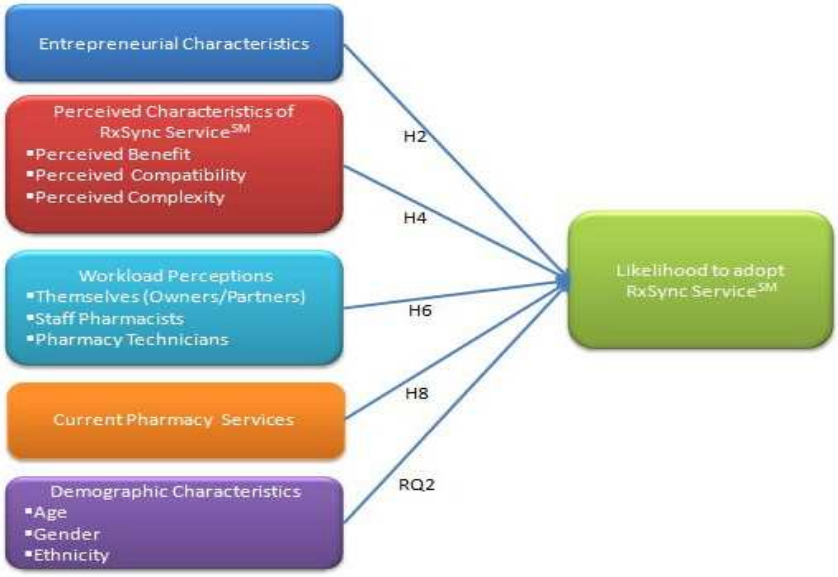


Figure II. Study Model 2



RESULTS

The survey was attempted by 543 participants on a national online panel of independent pharmacists recruited via a healthcare marketing research company (Delta Marketing Dynamics). Participants were eligible for participation in the study only if they were independent community pharmacy owners/partners (sample frame of the study). 286 participants were rendered ineligible for the study participation based on the screener question that asked respondents about their position in the pharmacy. 257 participants reported themselves to be independent community pharmacy owners/partners and were qualified participants for the study. Of the participants who were qualified by the screener, 49 abandoned the survey before completion and therefore, 208 completed responses were obtained.

Sample Description

A total of 208 responses were used for the final analysis. The average age of the respondents was 52 years, and the majority of the respondents were male (80.8%). The sample was predominantly comprised of whites/Caucasians (88%). More than 80% of the respondents had a BS in pharmacy (practice degree). The sample was geographically distributed across all four regions in the United States with a slight overrepresentation of the southern region (42.3%). Respondents have been actively practicing pharmacy for an average of 27 years and have been an owner/partner of their independent community pharmacy for an average of 18 years. The

majority of the respondents graduated with their last professional pharmacy degree in the 1970's and 1980's. On average, respondents owned 1.5 stores and filled nearly 200 prescriptions each day (including new and refills). The number of FTE pharmacists and FTE pharmacy technicians employed in the independent community pharmacies of which respondents were owners/partners, ranged from 1-16 and 1-28 respectively. Respondents indicated that they spend 55% of their time dispensing prescriptions. A summary of the characteristics of respondents and their practices has been presented in Tables II. and III.

Table II. Characteristics of Respondents

Characteristics	*No. Respondents (%)*
Gender	
Men	168(80.8)
Women	40 (19.2)
Race/Ethnicity	
White/Caucasian	183 (88.0)
Asian/ Asian Indian	8 (3.8)
Hispanic	5 (2.4)
African American/Black	4 (1.9)
American Indian/Alaska Native	3 (1.4)
Other	5 (2.4)
Pharmacy Training	
BS in Pharmacy (practice degree)	172 (82.7)
Pharm. D.	31 (14.9)
MS in Pharmacy	2 (1.0)
Other	3 (1.4)
*Post Graduate Training**	
None	177 (85.1)
Residency	10 (4.8)
Fellowship	1 (0.5)
Other	20 (9.6)
Geographic Region	
South	88 (42.3)
Mid-West	58 (27.9)
North East	36 (17.3)
West	26 (12.5)
Year graduated last professional pharmacy degree	
1950-1960	5 (2.4)
1961-1970	18 (8.7)
1971-1980	64 (30.8)
1981-1990	65 (31.3)
1991-2000	42 (20.2)
2001-2010	14 (6.7)

******Respondents could check all that apply*

Table III. Characteristics of Respondents and their Practice

Characteristics	*Mean (Standard deviation)*	*Range*
Age	52.15 (10.13)	28-77
Years of actively practicing pharmacy	27.97 (10.76)	4-53
Length of time as an owner/partner	18.59 (10.99)	1-50
Number of stores owned	1.48 (1.03)	1-8
Number of prescriptions (new and refills) filled per day	198.79 (125.99)	1-1100
Number of FTE pharmacists employed	1.79 (1.30)	1-16
Number of FTE pharmacy technicians	2.91 (2.63)	1-28
% of time performing the following activities		
Dispensing prescriptions	54.61 (19.91)	0-95
Communicating with patients	20.19 (11.53)	3-85
Conducting administrative work	18.39 (14.06)	0-75
Other duties	6.86 (7.49)	0-40

More than 90% of the respondents indicated they are involved to a great extent in key decision making related to implementation of new products or services for their pharmacy (ies). This information may be found in Table IV.

Table IV. Extent to which the Owner/Partner is a Key Decision Maker

Extent of involvement in key decision making related to implementation of new products or services for your pharmacy (ies) where 1= Not at all and 5= To a great extent.	*Number of respondents (%)*
1 = Not at all	0 (0)
2	2 (1.0)
3	5 (2.4)
4	12 (5.8)
5 = To a great extent	189 (90.9)

A majority of the respondents perceived “high” (43.8%) or “excessively high” (21.6%) workload for themselves in the pharmacy. Table V. summarizes respondents’ perceptions of workload for the respondents themselves, staff pharmacists and pharmacy technicians employed in their pharmacy (ies).

Table V. Perception of Workload for Responding Pharmacists, Staff Pharmacists and Pharmacy Technicians

	Number of Respondents (%)				
	Excessively Low	*Low*	*About right*	*High*	*Excessively high*
You	0 (0)	8 (3.8)	64 (30.8)	91 (43.8)	45 (21.6)
Your staff pharmacist(s)	7 (3.4)	16 (7.7)	124 (59.6)	51 (24.5)	10 (4.8)
Your pharmacy technician(s)	5 (2.4)	11 (5.3)	120 (57.7)	62 (29.8)	10 (4.8)

Respondents were provided with a list of pharmacy services and were asked to indicate all of the pharmacy services they offer at their pharmacies. 71.6% and 71.2% of the respondents indicated that they offer medication therapy management and compounding, respectively. Durable medical goods, immunization services, long-term care and/or assisted living dispensing were some of the services that were offered by a majority of respondents at their pharmacies. There were 60 reports of "other" current pharmacy services by respondents. Services that respondents indicated as "other" were examined to determine if the services should be included in hypothesis testing of the relationship between number of current pharmacy services offered and their attitudes toward and likelihood to adopt RxSync Service^{SM}. In other words, the services had to be of a similar scope, extent or complexity as that of RxSync Service^{SM}. For example, if "hospice services" was indicated in the "other" category, it would be included in hypothesis testing. If "delivery" or "medication flavoring" was indicated in the "other" category, it would not be included in hypothesis testing. Table VI. summarizes the current pharmacy services offered by respondents in this study.

Table VI. Current Pharmacy Services Offered By Independent Community Pharmacy Owners/Partners

Pharmacy Service	*Number of respondents (%)*
Medication therapy management	149 (71.60)
Compounding	148 (71.20)
Durable medical goods	133 (63.90)
Immunization services	84 (40.40)
Long-term care and/or assisted living dispensing	79 (38.00)
Adherence management program	66 (31.70)
Disease state education program (e.g. diabetes, asthma etc.)	61(29.30)
Disease state management program (e.g. diabetes, asthma etc.)	59 (28.40)
Health screening(s)	55 (26.44)
Long-term care and/or assisted living consulting	44 (21.20)
Smoking cessation	35 (16.80)
Pain management	25 (12.01)
Nutrition services/weight loss	22 (10.60)
Others	60 (28.80)

*Respondents could check all that apply

Respondents were also provided with a list of pharmacy-related technologies and asked to indicate those they offer at their pharmacies. Some of the pharmacy-related technologies that the respondents suggested in the "other" category included "refills via website" and e-prescribing. Forty-three percent of the respondents indicated that they do not provide any pharmacy technology at their pharmacies. Table VII. summarizes various pharmacy related technologies provided by independent community pharmacies of the respondents.

Table VII. Pharmacy-Related Technologies Provided By Independent Community Pharmacies

Pharmacy Technology	*Number of respondents (%)*
Automated dispensing	50 (24.0)
Point of service dispensing system	67 (32.2)
Interactive voice response system	45 (21.6)
Text messaging	29 (13.9)
Others	15 (7.2)
None	91 (43.8)

*****Respondents could to check all that apply

Description of Measures

Each of the scales administered in the study demonstrated reliability upon the calculation of Cronbach's alpha except for the social desirability bias scale. Cronbach's alpha ranged from 0.78 for the perceived compatibility of RxSync Service[SM] measure to 0.95 for the perceived benefit associated with RxSync Service[SM] measure.

Cronbach's alpha for social desirability bias measure was found to be 0.43. In an attempt to remove items to improve the value of Cronbach's alpha, corrected-item correlations were checked but no action was taken due to lack of improvement upon removal of items. The social desirability bias measure was found to be significantly correlated with entrepreneurial characteristics as well as with workload perceptions of community pharmacy owners/partners. This indicates that community pharmacy owners/partners may have overstated and given socially desirable responses when asked about their entrepreneurial characteristics and perceptions of workload. However, because of the low reliability of the social desirability bias measure, results should be interpreted with caution. Table VIII. summarizes the Cronbach's alphas, scale means and standard deviations and per-item means for each measure.

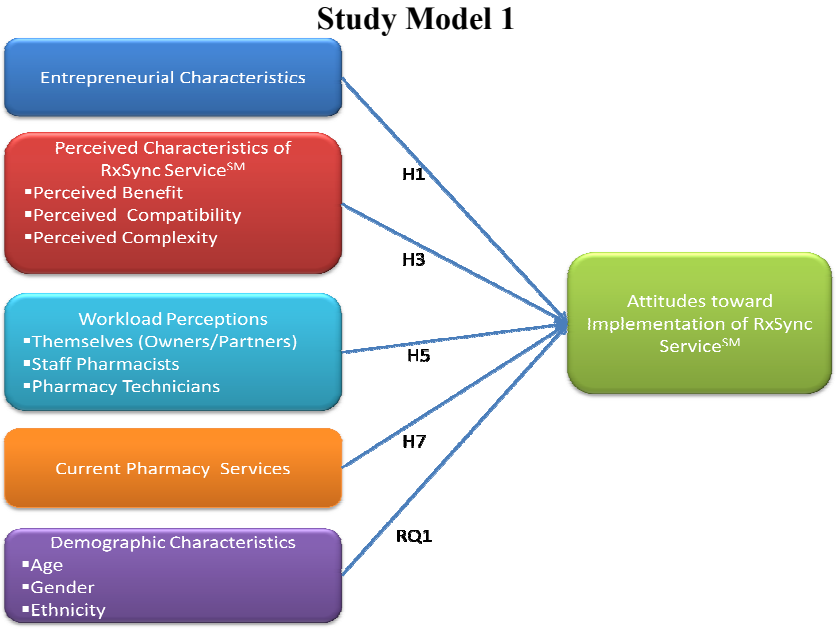
Table VIII. Summary of Study Measures

Variable	*No. Items*	*Cronbach's Alpha*	*Mean ± SD*	*Per-Item Mean*
Entrepreneurial characteristics scale[a]	22	0.81	112.70 ±12.82	5.12
Perceived benefit scale[b]	8	0.95	26.67 ± 7.86	3.83
Perceived compatibility scale[c]	6	0.83	17.24 ± 5.62	2.87
Perceived complexity scale[d]	3	0.78	8.74 ± 2.71	2.91
Attitude toward RxSync Service[SM] scale[e]	7	0.82	21.56 ± 5.36	3.08
Social desirability bias scale[f]	10	0.43	40.28 ± 7.13	4.03

[a]Measured on a 7-point scale where 1= Does not describe at all and 7 = Describes me perfectly
[b]Measured on a 5-point scale where 1= Would be no benefit and 5 = Would be extremely beneficial
[c]Measured on a 5-point scale where 1 = Not at all a barrier and 5 = Significant barrier
[d]Measured on a 5-point scale where 1= Not at all difficult and 5 = Extremely difficult
[e]Measured on a 5 point scale where 1= Strongly disagree and 5 = Strongly agree
[f]Measured on a 7-point scale where 1 = Strongly disagree and 7 = Strongly agree

For perceived benefit scale that was used in this study, where 1= "would be no benefit" and 5 = "would be extremely beneficial", higher ratings indicated greater perceived benefit. Similarly, for perceived complexity scale used in the study, where 1= "not at all difficult" and 5 "extremely difficult", higher ratings indicated greater perceived complexity. However, for perceived compatibility scale used in this study, where 1= "not at all a barrier" and 5= "significant barrier", higher ratings indicated lower perceived compatibility. Thus, to achieve consistency across all three measures of perceived characteristics of RxSync Service[SM] and facilitate interpretation, the perceived compatibility measure was reverse coded. After reverse coding, higher ratings on the perceived compatibility measure indicated greater perceived compatibility. Similarly, some items in the social desirability bias scale were also reverse coded to ensure the same direction for interpretation.

Study Model 1:Multi-Variable Regression



Study model 1 (Hypotheses 1, 3, 5, 5, 7, and RQ1) was analyzed using multi-variable linear regression. After creation of summated scales for each variable and the calculation of correlations among variables, data were examined for violations of linearity, constant variance of the error term (homoscedasticity), independence of error terms, and normality of the error term distribution. The first three assumptions were examined with a scattered plot of studentized residuals versus predicted values. Normality was assessed by examining normal probability plots of the residuals (Hair et al., 2010). Assumptions were tested for and data demonstrated linearity, homoscedasticity, independence, and normality.

Data were screened for residual outliers by plotting standardized residuals for each case and identifying standardized residuals of more than 3.3 or less than -3.3 (Tabachnick & Fidell, 2007). Finally, a correlation matrix (Table 9.) was examined for multicollinearity (correlations

of .90 and above according to Hair et al. (2010)). Tolerance and variance inflation factors (VIF) were also examined for instances of multicollinearity (tolerance values less than .10 and VIF greater than 10) (Hair et al., 2010). These indices did not indicate instances of multicollinearity in the study data. All hypotheses were tested at an a priori alpha level of 0.05.

Table IX. Correlation Matrix

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Entrepreneurial characteristics	4.96	0.576	1	.303**	-.015	.047	.195**	.355**	.086	-.019	-.095	.172*	.239**	.238**	.286**	.153*
2. Perceived benefit	3.33	0.983	.303**	1	.141*	-.229**	.152*	.663**	.378**	.067	-.183**	.070	.036	.095	.053	.016
3. Perceived compatibility	3.13	0.937	-.015	.141*	1	-.612*	.178*	.316**	.301**	.044	-.058	-.021	-.132	-.098	-.119	-.122
4. Perceived complexity	2.91	0.902	.047	-.229**	-.612*	1	-.274**	-.353**	-.289**	-.061	.089	-.079	.068	.068	.019	-.006
5. Current pharmacy services	4.62	2.401	.195**	.152*	.178*	-.274**	1	.159*	.113	-.049	-.072	.010	.101	.056	.142*	.088
6. Attitude toward RxSync Service[SM]	3.09	0.579	.355**	.663**	.316**	-.353**	.159*	1	.434**	.087	-.240**	.084	.086	.133	.114	.076
7. Likelihood to adopt RxSync Service[SM]	-----	-----	.086	.378**	.301**	-.289**	.113	.434**	1	.029	-.091	.047	-.010	.046	.118	.027
8. Gender	-----	-----	-.019	.067	.044	-.061	-.049	.087	.029	1	-.188**	.120	-.004	-.123	-.078	-.114
9. Current age	52.15	10.131	-.095	-.183**	-.058	.089	-.072	-.240**	-.091	-.188**	1	-.101	-.151*	-.038	.008	.036
10.Ethnicity	-----	-----	.172*	.070	-.021	-.079	.010	.084	.047	.120	-.101	1	-.051	.020	.093	.006
11. Perceived workload (Owners/partners)	-----	-----	.239**	.036	-.132	.068	.101	.086	-.010	-.004	-.151*	-.051	1	.511*	.467**	.175*
12. Perceived workload (Staff pharmacists)	-----	-----	.238**	.095	-.098	.068	.056	.133	.046	-.123	-.038	.020	.511**	1	.571**	. 192**
13. Perceived workload (Pharmacy technicians)	-----	-----	.286**	.053	-.119	.019	.142*	.114	.118	.-.078	.008	.093	.467**	.571**	1	.269**
14. Social desirability bias	4.03	.713	0.153*	.016	-.122	-.006	.088	.076	.027	-.114	.036	.006	.175*	.192**	.269**	1

*Correlation is significant at the 0.05 level; **Correlation is significant at 0.01 level.

As can be seen in Table II. describing the characteristics of respondents, most of the independent community pharmacy owners were Whites/Caucasians, with only 25 respondents comprising of African American/Black, American Indian/Alaska native, Asian/Asian Indian, Hispanic and others all together. Due to this skewed distribution, a dichotomous variable with categories- "Whites/Caucasians" and "others" was created. The dichotomous variable was then entered into the regression model for analysis. The frequency distribution thus obtained has been shown in Table X.

Table X. Frequency Distribution of Dichotomized Race/Ethnicity

Race/ethnicity	*Number of respondents (%)*
Whites/Caucasians	183 (88)
Others	25 (12)

Categorical variables such as workload perceptions, race/ethnicity and gender were entered using reference cell coding for multi-variable linear regression. For the variable workload perception, the category "excessively high" was used as the reference cell. For race/ethnicity, the category "others" was used as a reference cell. Finally, for gender, the category "female" was used as a reference cell.

Study model 1 demonstrated a significant relationship between entrepreneurial characteristics of independent community pharmacy owners/partners and their attitudes toward implementation of RxSync Service^{SM} and a significant relationship between perceived characteristics of RxSync Service^{SM} (including perceived benefit, perceived complexity and perceived compatibility of RxSync Service^{SM}) and their attitudes toward implementation of RxSync Service^{SM} (Table XI.). Multi-variable linear regression also indicated a significant

relationship between "excessively low" perceived workload for staff pharmacists, only, and attitude toward RxSync Service[SM]. To clarify this finding, general linear model (GLM) procedures were conducted (Table XII.). It was found through this analysis that "excessively low" perceived workload for staff pharmacists, was significantly related to attitudes toward RxSync Service[SM] at $p < 0.01$.

59.4% of the variation in independent community pharmacy owners/partners' attitudes toward RxSync Service[SM] is explained by study model 1 which included entrepreneurial characteristics of pharmacy owners/partners, their perceptions of characteristics of RxSync Service[SM], current pharmacy services offered at their pharmacy, their perceptions of workload and their demographic characteristics including age, gender and their ethnicity.

Hypothesis 1 suggests that the more entrepreneurial community pharmacy owners, the more positive their attitude toward implementation of RxSync Service[SM]. Hypothesis 1 was tested in presence of other variables in the model including, perceptions of characteristics of RxSync Service[SM], current pharmacy services offered, workload perceptions and demographic characteristics (age, gender, and ethnicity). *Entrepreneurial characteristics were significantly and positively related to community pharmacy owners/partners' attitude toward implementation of RxSync Service[SM]* (beta coefficient = 0.169).

Hypothesis 3 suggests that the more positive community pharmacy owners' perception of the characteristics of RxSync Service[SM] the more positive their attitude toward implementation of RxSync Service[SM]. Hypothesis 3 was tested in the presence of other variables in the model including, entrepreneurial characteristics, current pharmacy services offered, workload perceptions and demographic characteristics (age, gender, and ethnicity). *Perception of the*

characteristics of RxSync Service℠ i.e. perceived benefit and perceived compatibility significantly and positively related to community pharmacy owners' attitude toward implementation of RxSync Service℠ (beta coefficients = 0.547 and 0.172, respectively). *Perceived complexity was significantly and negatively related to community pharmacy owners' attitude toward implementation of RxSync Service℠* (beta coefficient = -0.138). Perceived benefit was significantly and positively related to community pharmacy owners' attitude toward RxSync Service℠ (beta coefficient = 0.547). Perceived compatibility was significantly and positively related to community pharmacy owners' attitude toward RxSync Service℠ (beta coefficient = 0.172). Perceived complexity was significantly and negatively related to community pharmacy owners' attitude toward RxSync Service℠ (beta coefficient = -0.138).

Hypothesis 5 suggests that the less workload community pharmacy owners perceive (for themselves, their staff pharmacists and their pharmacy technicians), the more positive their attitude toward implementation of RxSync Service℠. Hypothesis 5 was tested in the presence of other variables in the model including, entrepreneurial characteristics, perception of the characteristics of RxSync Service℠, current pharmacy services offered, and demographic characteristics (age, gender, and ethnicity). Perceptions of workload for pharmacists themselves did not significantly predict pharmacists' attitude toward implementation of RxSync Service℠. *Community pharmacy owners/partners, who perceived that their staff pharmacists have "excessively low" workload, were less likely to have a positive attitude toward implementation of RxSync Service℠ as compared to community pharmacy owners/partners who perceived that their staff pharmacists have "excessively high" workload* (beta coefficient = -0.263).

Hypothesis 7 suggests that the number of current pharmacy services offered at the independent community pharmacy is positively related to independent community pharmacy owners' attitude toward implementation of RxSync Service[SM]. Hypothesis 7 was tested in the presence of other variables in the model including, entrepreneurial characteristics, perception of the characteristics of RxSync Service[SM], perceptions of workload level, and demographic characteristics (age, gender, and ethnicity). The number of current pharmacy services offered at the independent community pharmacy was not significantly related to community pharmacy owners' attitude toward implementation of RxSync Service[SM] (beta coefficient = -0.067).

Research question 1(RQ1) seeks to determine whether independent community pharmacy owners' demographic characteristics (e.g. age, gender, and race) are related to their attitudes toward implementation of RxSync Service[SM]. RQ1 was tested in the presence of other variables in the model including, entrepreneurial characteristics, perception of the characteristics of RxSync Service[SM], perceptions of workload level, and number of current pharmacy services offered at independent community pharmacy. Independent community pharmacy owners' demographic characteristics (e.g. age, gender, and race) were not found to be significantly related to their attitudes toward implementation of RxSync Service[SM] (beta coefficients = -0.086, 0.033 and 0.016, respectively). Table XI. summarizes the results of multi-variable regression used to test hypotheses 1, 3, 5, 7 and RQ1 (Study model 1). Table XII. summarizes the results of study model 1 obtained using General Linear Model (GLM) procedure.

Table XI. Multi-Variable Regression Results (Study Model 1)

Relationship Between Entrepreneurial Characteristics, Perceptions of characteristics of RxSync Service[SM], Perceptions of Workload (for Owners/Partners themselves, their Staff Pharmacists and Pharmacy Technicians), Current Pharmacy Services and Demographic Characteristics and Independent Community Pharmacy Owners' Attitudes Toward RxSync Service[SM] (coefficients)			
Variables	Beta	t	Sig.
Entrepreneurial characteristics	0.169	3.155	**0.002
Perceived benefit	0.547	10.450	**<0.005
Perceived compatibility	0.172	2.859	**.005
Perceived complexity	-0.138	-2.181	*.030
Perceptions of workload			
For Owner/Partners themselves			
Excessively low	----	----	---
Low	0.075	1.161	0.247
About right	0.009	0.119	0.905
High	0.021	0.300	0.764
For their Staff Pharmacists			
Excessively low	-0.263	-3.174	**.002
Low	-0.016	-0.170	0.865
About right	-0.291	-1.790	0.075
High	-0.261	-1.855	0.065
For their Pharmacy Technicians			
Excessively low	0.134	1.843	0.067
Low	-0.133	-1.540	0.125
About right	0.171	1.068	0.287
High	0.188	1.291	0.198
Current pharmacy services	-0.067	-1.311	0.191
Age	-0.086	-1.723	0.087
Gender (Male)	0.033	0.684	0.495
Ethnicity (Whites)	0.016	0.322	0.748
F	14.506		
R^2	0.594		
Standard error of the estimate	0.387		

*p<0.05 **p<0.01

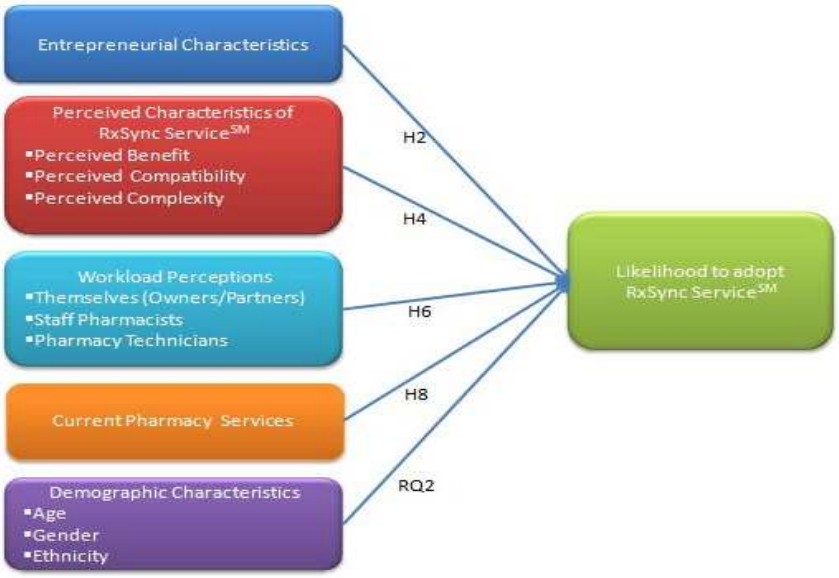
Table XII. General Linear Model Results (Study Model 1)

Variables	*T*	*Sig.*
Intercept	3.970	<.005
Entrepreneurial Characteristics	3.155	**0.002
Perceived Benefit	10.450	**<0.005
Perceived Compatibility	2.859	**.005
Perceived Complexity	-2.181	*.030
Perceptions of Workload		
For Owner/Partners themselves		
Excessively low	----	----
Low	1.161	0.247
About right	0.119	0.905
High	0.300	0.764
For their Staff Pharmacists		
Excessively low	-3.174	**0.002
Low	-0.170	0.865
About right	-1.790	0.075
High	-1.855	0.065
For their Pharmacy Technicians		
Excessively low	1.843	.067
Low	-1.540	.125
About right	1.068	.287
High	1.291	.198
Current Pharmacy Services	-1.311	0.191
Age	-1.723	-0.087
Gender (Male)	-0.684	0.495
Ethnicity (whites)	-0.322	0.748

*p<0.05 **p<0.01

Study model 2: Binary logistic regression

Study model 2



Study model 2 (Hypotheses 2, 4, 6, 8, and RQ2) was analyzed using logistic regression (simultaneous estimation or standard or direct). The dependent variable for study model 2 is likelihood to adopt RxSync Service℠. Based on the information provided in the vignette, respondents were asked to indicate their likelihood to adopt RxSync Service℠. Using a 5-point Likert scale, where 1 = "extremely unlikely", 2 = "unlikely", 3 = "neutral", 4 = "likely", and 5 = "extremely likely", respondents were asked to indicate their likelihood to adopt RxSync Service℠ in their respective pharmacies. Table13 summarizes the cross-tabulation results of respondents' likelihood to adopt RxSync Service℠ across gender and ethnicity.

Table XIII. Cross-Tabulation Results for Respondents' Likelihood to Adopt RxSync Service[SM] Across Gender and Ethnicity

Characteristics	Likelihood to Adopt RxSync Service[SM] Number (%)					
	Extremely Unlikely	Unlikely	Neutral	Likely	Extremely Likely	
Gender						N
Male	35 (16.8)	37 (17.8)	71 (34.1)	23 (11.1)	2 (1.0)	168 (80.8)
Female	6 (2.9)	12 (5.8)	15 (7.2)	5 (2.4)	2 (1.0)	40 (19.2)
N(%)	41 (19.7)	49 (23.6)	86 (41.3)	28(13.5)	4 (1.9)	208 (100.0)
Ethnicity						
African American/Black	1 (0.5)	0 (0.0)	3 (1.4)	0 (0.0)	0 (0.0)	4 (1.9)
American Indian/Alaska Native	0 (0.0)	1 (0.5)	2 (1.0)	0 (0.0)	0 (0.0)	3 (1.4)
Asian/Asian Indian	1 (0.5)	1 (0.5)	4 (1.9)	2 (1.0)	0 (0.0)	8 (3.8)
Hispanic	0 (0.0)	3 (1.4)	1 (0.5)	1 (0.5)	0 (0.0)	5 (2.4)
Whites/Caucasians	38 (18.3)	44 (21.2)	74 (35.6)	23 (11.1)	4 (1.9)	183 (88.0)
Others	1 (0.5)	0 (0.0)	2 (1.0)	2 (1.0)	0 (0.0)	5 (2.4)
N(%)	41 (19.7)	49 (23.6)	86 (41.6)	28 (13.5)	4 (1.9)	208 (100.0)

As seen above (Table XIII.), most of the independent community pharmacy owners were Whites/Caucasians, with only 25 reporting to be African American/Black, American Indian/Alaska native, Asian/Asian Indian, Hispanic and others all together. Due to such a skewed distribution, we created a dichotomous variable with categories- "Whites/Caucasians" and "others". Additionally, for the purposes of analysis using binary logistic regression, we collapsed the polychotomous variable "likelihood to adopt RxSync Service[SM]" to a dichotomous variable with categories "likely" and "not likely" to adopt RxSync Service[SM]. Responses for "likely" and "extremely likely" were considered in the "likely" category whereas, responses for "extremely unlikely", "unlikely" were considered in the "not likely" category. The responses for the "neutral" category were excluded from the analysis. The occurrence of zero cell count for some of the categories of the ethnicity variable was another reason for conversion of the

polychotomous dependent variable (likelihood to adopt RxSync Service[SM]) into a dichotomous dependent variable. The frequency distribution thus obtained has been shown below in Table XIV.

Table XIV. Cross-tabulation Results for Gender and Ethnicity of Respondents versus their Likelihood to Adopt RxSync Service[SM].

Characteristics	Likelihood Number (%)		
	Likely	Not likely	
Gender			N (%)
Male	25 (20.5)	72 (74.2)	97 (79.5)
Female	7 (5.7)	18 (14.8)	25 (20.5)
N (%)	32 (26.2)	90 (73.7)	122 (100.0)
Ethnicity			
Whites/Caucasians	27 (22.1)	82 (67.2)	109 (89.3)
Others	5 (4.1)	8 (6.5)	13 (10.7)
N (%)	32 (26.2)	90 (73.7)	122 (100.0)

In spite of creating a dichotomous "likelihood to adopt RxSync Service[SM]" variable, the number of respondents in each category of the likelihood to adopt RxSync Service[SM] variable did not meet sample size requirements of multi-variable logistic regression according to the number of independent variables and subgroups. Accordingly, on conducting logistic regression, high standard errors were obtained for some of the variables which can be seen in Table XV. The results of study model 2 analyzed using multi-variable logistic regression can be obtained in Table XV.

Table XV. Multi-Variable Logistic Regression Results (Study Model 2)

Variable	B	Standard Error	Exp(B)	Sig.	95% CI for Exp(B)	
					Lower	Upper
Entrepreneurial characteristics	.330	.761	1.391	.664	.313	6.185
Perceived benefit	3.732	0.919	41.753	**<0.005	6.892	252.952
Perceived compatibility	1.173	0.664	3.233	.077	.880	11.874
Perceived complexity	-.735	0.687	.479	.285	.125	1.844
Perceived workload						
Owners/Partners						
Excessively low	-----	------	------	-----	-----	----
Low	26.404	10318.229	2.935E11	.998	.000	.
About right	.299	1.366	1.348	.827	.093	19.625
High	-.689	1.002	.502	.492	.070	3.579
Staff Pharmacists						
Excessively low	-43.022	15191.096	.000	.998	.000	.
Low	-1.842	13.616	.159	.892	.000	6.172E10
About right	-2.893	13.402	.055	.829	.000	1.417E10
High	-2.540	13.378	.079	.849	.000	1.927E10
Pharmacy Technicians						
Excessively low	-8.872	15656.999	.000	1.000	.000	.
Low	-18.290	10318.227	.000	.999	.000	.
About right	5.064	13.506	158.262	.708	.000	4.967E13
High	5.571	13.481	314.625	.670	.000	9.395E13
Current pharmacy services	0.232	0.213	1.261	0.277	0.831	1.914
Gender (Male)	0.358	0.623	1.431	0.565	0.422	4.854
Age	-0.034	.025	0.967	0.179	0.920	1.016
Ethnicity (Whites)	-0.199	0.741	0.819	0.788	0.192	3.501

*p<0.05 **p<0.01

Even after collapsing some of the categories of the dependent variables, too few cases relative to the number of independent variables in study model 2 were observed. As a result, on conducting multi-variable logistic regression, high standard errors were obtained. Following this discussion, literature was sought to identify support for considering an ordered dependent variable as a continuous variable. Likelihood to adopt RxSync Service^{SM} is an ordered categorical dependent variable consisting of categories: extremely unlikely, unlikely, neutral, likely and extremely likely. In principle there is a single unobservable, continuous variable related to this ordered variable, likelihood to adopt RxSync Service^{SM} (Anderson, 1984). Therefore, the "likelihood to adopt RxSync Service^{SM}," variable was treated as a continuous variable and thus study model 2 was analyzed using multi-variable linear regression.

As in study model 1, categorical variables such as workload perceptions, race/ethnicity and gender were entered using reference cell coding for multi-variable linear regression. For the variable workload perception, the category "excessively high" was used as the reference cell. For race/ethnicity, the category "others" was used as a reference cell. Finally, for gender, the category "female" was used as a reference cell.

Study model 2 demonstrated a significant and positive relationship between perceived benefit, perceived compatibility and community pharmacy owners' likelihood to adopt RxSync Service^{SM}. In addition, community pharmacy owners' age was also found to be significantly and negatively related to their likelihood to adopt RxSync Service^{SM} (Table XVI.)

Fifty-eight point two% of the variation in independent community pharmacy owners/partners' likelihood to adopt RxSync Service^{SM} is explained by study model 2 which included entrepreneurial characteristics of pharmacy owners/partners, their perceptions of characteristics of RxSync Service^{SM}, current pharmacy services offered at their pharmacy, their

perceptions of workload for themselves, their pharmacists and pharmacy technicians and their demographic characteristics including age, gender and their ethnicity.

Hypothesis 2 suggests that the more entrepreneurial community pharmacy owners, the more likely they are to adopt RxSync Service[SM]. Hypothesis 2 was tested in the presence of presence of other variables in the model including, perceptions of characteristics of RxSync Service[SM], current pharmacy services offered, workload perceptions and demographic characteristics (age, gender, and ethnicity). Increase in mean entrepreneurial characteristics score for independent community pharmacy owners/partners was not found to be significantly related to an increased likelihood of independent community pharmacy owners/partners to adopt RxSync Service[SM]. The results of multi-variable linear regression do not support this hypothesis, when other predictors in the model were held constant (Table XVI.).

Hypothesis 4 suggests that the more positive community pharmacy owners' perception of the characteristics of RxSync Service[SM], the more likely they are to adopt RxSync Service[SM]. Hypothesis 4 was tested in the presence of other variables in the model including, entrepreneurial characteristics, current pharmacy services offered, workload perceptions and demographic characteristics (age, gender, and ethnicity). Perceived benefit and perceived compatibility were seen to have a statistically significant relationship with independent community pharmacy owners/ partners' likelihood to adopt RxSync Service[SM]. *Perceived benefit was significantly and positively related to community pharmacy owners' attitude toward RxSync Service[SM]* (beta coefficient = .625). *Perceived compatibility was significantly and positively related to community pharmacy owners' attitude toward RxSync Service[SM]* (beta coefficient = .131). However, perceived complexity was not seen to have a statistically significant relationship with

independent community pharmacy owners/ partners' likelihood to adopt RxSync Service[SM] (Table XVI.).

Hypothesis 6 suggests that the less workload community pharmacy owners' perceive for themselves, their pharmacists and their technicians, the more likely they are to adopt RxSync Service[SM]. Hypothesis 6 was tested in the presence of other variables in the model including, entrepreneurial characteristics, perception of the characteristics of RxSync Service[SM], current pharmacy services offered, and demographic characteristics (age, gender, and ethnicity). The results of multi-variable linear regression do not support this hypothesis, as independent community pharmacy owners/partners' perceptions of workload were not found to be significantly associated with their likelihood to adopt RxSync Service[SM], when other predictors in the model were held constant (Table XVI.).

Hypothesis 8 suggests that the number of current pharmacy services offered at the independent community pharmacy is positively related to independent community pharmacy owners' likelihood to adopt RxSync Service[SM]. Hypothesis 8 was tested in the presence of other variables in the model including, entrepreneurial characteristics, perception of the characteristics of RxSync Service[SM], perceptions of workload level, and demographic characteristics (age, gender, and ethnicity). The results of multi-variable linear regression do not support this hypothesis, as the number of services offered by community pharmacy owners was not significantly related to increased likelihood to adopt RxSync Service[SM] (Table XVI.).

Research question 2 (RQ2) seeks to determine whether independent community pharmacy owners' demographic characteristics (e.g. age, gender, and race) are related to their likelihood to adopt RxSync Service[SM]. RQ2 was tested in the presence of other variables in the

model including, entrepreneurial characteristics, perception of the characteristics of RxSync Service[SM], perceptions of workload level, and number of current pharmacy services offered at independent community pharmacy. *Independent community pharmacy owners' age was found to be significantly and negatively related to their likelihood to adopt RxSync Service[SM]*. (beta coefficient = .111). Independent community pharmacy owners' gender and race were not found to be significantly related to their likelihood to adopt RxSync Service[SM]. (Table XVI.) summarizes the results of multi-variable linear regression for hypotheses 2, 4, 6, 8, and RQ2. Table XVII. summarizes the results of tested regression equations for hypotheses 1-8 and research questions 1-2.

Table XVII. Multi-Variable Linear Regression Results (Study Model 2)

Relationship Between Entrepreneurial Characteristics, Perceptions of characteristics of RxSync Service[SM], Perceptions of Workload for Owners/Partners themselves, their Staff Pharmacists and Pharmacy Technicians, Current Pharmacy Services and Demographic Characteristics and Independent Community Pharmacy Owners' Likelihood to Adopt RxSync Service[SM] (coefficients)			
Variables	*Beta*	*t*	*Sig.*
Entrepreneurial characteristics	-.034	-.627	.532
Perceived benefit	.625	11.769	**<.005
Perceived compatibility	.131	2.151	*.033
Perceived complexity	-.091	-1.410	.160
Perceptions of workload			
For Owner/Partners themselves			
Excessively low	----	----	---
Low	.120	1.832	.068
About right	.070	.938	.349
High	.022	.309	.758
For their Staff Pharmacists			
Excessively low	-.104	-1.242	.216
Low	.075	.785	.433
About right	.023	.137	.891
High	.080	.556	.579
For their Pharmacy Technicians			
Excessively low	-.034	-.462	.645
Low	-.126	-1.433	.153
About right	-.004	-.023	.982
High	.09	.648	.518
Current pharmacy services	.051	.979	.329
Age	-.111	-2.203	.029
Gender (Male)	-.021	-.432	.667
Ethnicity (Whites)	.026	.516	.606
F	13.788		
R^2	.582		
Standard error of the estimate	.689		

*p<0.05 **p<0.01

Table XVII. Summary of Hypotheses 1-8 and Research Questions 1-2

	Hypotheses and Research Questions	*Hypothesized Direction*	*Supported?*
Hypothesis 1	Entrepreneurial characteristics ➔ Attitude toward implementation of RxSync Service℠	Positive	Yes
Hypothesis 2	Entrepreneurial characteristics ➔ likelihood to adopt RxSync Service℠	Positive	No
Hypothesis 3	Perceived characteristics of RxSync Service℠ ➔ Attitude toward implementation of RxSync Service℠		
	Perceived benefit ➔ Attitude toward implementation of RxSync Service℠		
	Perceived compatibility➔ Attitude toward implementation of RxSync Service℠	Positive	Yes
	Perceived complexity➔ Attitude toward implementation of RxSync Service℠	Positive	Yes
		Negative	Yes
Hypothesis 4	Perceived characteristics of RxSync Service℠ ➔ Likelihood to adopt RxSync Service℠		
	Perceived benefit ➔ Likelihood to adopt RxSync Service℠	Positive	Yes
	Perceived compatibility ➔ Likelihood to adopt RxSync Service℠	Positive	Yes
	Perceived complexity ➔ Likelihood to adopt RxSync Service℠	Negative	No
Hypothesis 5	Perceived workload (You) ➔ Attitude toward implementation of RxSync Service℠	Negative	No
	Perceived workload (Pharmacist) ➔ Attitude toward implementation of RxSync Service℠	Negative	No
	Perceived workload (Pharmacy Technician) ➔ Attitude toward implementation of RxSync Service℠		
		Negative	No
Hypothesis 6	Perceived workload (You) ➔ likelihood to adopt RxSync Service℠	Negative	No
	Perceived workload (Pharmacist) ➔ likelihood to adopt RxSync Service℠	Negative	No
	Perceived workload (Pharmacy Technician) ➔ likelihood to adopt RxSync Service℠	Negative	No
Hypothesis 7	Current pharmacy services ➔ Attitude toward implementation of RxSync Service℠	Positive	No
Hypothesis 8	Current pharmacy services ➔ likelihood to adopt RxSync Service℠	Positive	No
RQ1	Demographic characteristics➔ Attitude toward implementation of RxSync Service℠		
	Age ➔ Attitude toward implementation of RxSync Service℠	-------	No
	Gender ➔ Attitude toward implementation of RxSync Service℠	-------	No
	Ethnicity ➔ Attitude toward implementation of RxSync Service℠	-------	No
RQ2	Demographic characteristics ➔ likelihood to adopt RxSync Service℠		
	Age ➔ likelihood to adopt RxSync Service℠	-------	Yes
	Gender ➔ likelihood to adopt RxSync Service℠	-------	No
	Ethnicity ➔ likelihood to adopt RxSync Service℠	-------	No

DISCUSSION

This study presents a unique basis and understanding of the factors that influence pharmacists to implement new pharmacy-based services. The conceptual framework of the study is supported by theory and evidence regarding the importance of entrepreneurship in pharmacy. For years, the primary focus of the pharmacy profession has been dispensing of medications; however, with time the focus has shifted to patients. Literature supports that a pharmacy that is owned and operated by pharmacists has a great entrepreneurial potential. A pharmacy with entrepreneurial individuals is a nursery for innovations, which may ultimately enhance the value of services delivered to patients. Thus, there is a growing recognition of a need to identify pharmacy practitioners who are entrepreneurial in nature to add value to the existing deliverables of the profession. This study has also examined the role of other important determinants (perceptions of characteristics of service, perceptions of workload, current services offered and demographic characteristics of the entrepreneurs) of pharmacy service implementation identified through the literature.

Discussion of demographic characteristics of respondents and their practice

The study sample predominantly consisted of older male, Caucasian respondents. This phenomenon is most likely due to the nature of the sample itself- independent community pharmacy owners/partners. According to the traditional entrepreneurship literature, the effect of demographic characteristics of the implementers in service implementation is considered to be of significance. On the contrary, the results of study model 1 do not demonstrate the influence of

any of the demographic characteristics (e.g. age, gender, and ethnicity) on attitudes toward adopting RxSync Service[SM]. This may be an artifact of a demographically homogenous sample i.e. predominantly Whites/Caucasians. However, results of study model 2 indicated a significant negative relationship between age of respondents and their likelihood to adopt RxSync Service[SM]. In other words, with younger respondents indicated an increased likelihood to adopt RxSync Service[SM] as compared to older respondents. This could be enlightened by the fact that in general; younger individuals are less skeptic of accepting changes in their existing workflow and less resistant to change as compared to older individuals (Bird, 1989).

The sample had an overrepresentation of southern United States (42.3%); a possible reason could be that the developers of RxSync Service[SM] belong to University of Mississippi, a university in southeast. Thus, familiarity of the respondents with RxSync Service[SM] could have been a potential reason for more pharmacists being willing to participate in this study. However, we assessed respondents' familiarity with RxSync Service[SM] in the survey and only 20.7% of all respondents indicated that they had "heard but not adopted" RxSync Service[SM]; while only one respondent indicated that he/she had adopted RxSync Service[SM]. Of those who indicated that they had "heard but not adopted" RxSync Service[SM], 48.8% belong to southern region in the United States. In addition, according to NCPA Digest 2011, a proportionately higher number of independent community pharmacies are present in the southern region as compared to other pharmacies.

Slightly higher than national estimates provided in 2011 NCPA Digest, our study results indicated that 71% of the respondents indicated to offer medication therapy management as one of the patient care services offered at their pharmacies. Durable medical goods, demonstrated

estimates lower than national estimates of a survey of independent community pharmacists presented in the NCPA Digest 2011 whereas, compounding demonstrated estimates higher than those presented in NCPA Digest 2011.

Discussion of entrepreneurial characteristics of respondents

As discussed previously, the results of study model 1 reiterate the importance of entrepreneurial characteristics of community pharmacy owners in adopting new or existing pharmacy services. This finding is consistent with the literature, and has implications for all; the developers of RxSync Service[SM] as well as the professionals and can be further applied to study other pharmacy based services. This indicates that individuals who perceive themselves as entrepreneurial have a more favorable attitude toward implementation of RxSync Service[SM]. However, respondents' entrepreneurial characteristics were not found to be a significant predictor of their likelihood to adopt RxSync Service[SM]. A possible explanation of this finding could be that only 15% of the respondents indicated that they are likely to adopt RxSync Service[SM] which corresponds with the proportion of the respondents that were highly entrepreneurial. Because likelihood can be thought to be a much stronger concept than attitude, it is possible that individuals who are highly entrepreneurial are only the ones who actually indicated their likelihood to adopt RxSync Service[SM]. This finding may be subject to social desirability bias; respondents may have overstated their entrepreneurial characteristics; however, they may have stated their actual intentions while stating their likelihood to adopt RxSync Service[SM].

Discussion of perceptions of characteristics of RxSync Service℠

Perceptions of characteristics of RxSync Service℠ were found to be significant predictors of pharmacy owners' attitude toward implementation of RxSync Service℠. This indicates that community pharmacy owners who perceive characteristics of RxSync Service℠ to be beneficial and compatible with their existing practice and those who do not consider RxSync Service℠ to be difficult to implement in their practices have a more favorable attitude toward implementation of RxSync Service℠. This finding can be generalized to any other pharmacy based patient care service. Patient care services that are perceived to be beneficial and compatible with existing pharmacy practices and those that are perceived to be less complex may have greater prospects of being implemented. These findings are consistent with those obtained in a previous study by Westrick and Mount (2009) examining the impact of perceived innovation characteristics (perceived benefit, perceived compatibility and perceived complexity) on adoption of pharmacy based immunization services; where they found perceived characteristics of immunization service to be significant predictors of adoption. The results of the current study reinstate the importance of perceived characteristics of pharmacy services in their implementation. Thus, it is important to incorporate the influence of perceived benefit, perceived complexity and perceived compatibility of a service when designing strategies to promote adoption of innovative services such as RxSync Service℠. However, it is also important to note the distinction between attitudes toward a phenomenon and actual behavior. Nevertheless, attitudes have been found to predict behaviors when actual attitudes are formed based on behavior relevant information (Glasman & Albarracin, 2006). The current study provided behavior relevant information in terms of a vignette containing information regarding

benefits as well as resources required for implementation of RxSync Service[SM]. Therefore, actual attitudes may predict behavior.

Multi-variable linear regression results for study model 2 suggest a significant and positive relationship between perceptions of benefit associated with RxSync Service[SM] and respondents' likelihood to adopt RxSync Service[SM]. A similar relationship was observed for the relationship between perceived compatibility and likelihood to adopt RxSync Service[SM]. However, the relationship between perceived complexity and likelihood to adopt RxSync Service[SM] was not found to be significant. Although not significant, the relationship between perceived complexity and likelihood to adopt RxSync Service[SM] appears to be trending in the same direction as the relationship between perceived complexity and attitudes to adopt RxSync Service[SM]. Likelihood being a stronger concept than attitude could be another possible explanation for this finding.

Discussion of workload perceptions

Workload perceptions of owners/partners (themselves) were not found to be significantly related to favorable attitude toward implementation of RxSync Service[SM]. Nevertheless, a possible reason for an insignificant relationship between respondents' perceptions of workload for themselves and their attitude could be that the owners are not as involved in dispensing as their staff pharmacists and their pharmacy technicians. However, community pharmacy owners/partners, who perceived that their staff pharmacists have "excessively low" workload, were less likely to have a positive attitude toward implementation of RxSync Service[SM] as compared to community pharmacy owners/partners who perceived that their staff pharmacists have "excessively high" workload. A possible reason could be that, because these respondents

perceived "excessively low" workload for their pharmacists, they may have felt that RxSync Service[SM] would be of minimal benefit to them. Although, the workload perceptions for their staff may appear to be a more important consideration in the adoption of patient care services; for all practical purposes, workload perceptions of owners/partners themselves, their staff pharmacists and their pharmacy technicians did not have much of an influence on their attitudes toward and likelihood to adopt RxSync Service[SM].

Discussion of current pharmacy services offered at a pharmacy

The number of current pharmacy services offered was not found to be significantly associated with respondents' positive attitude toward implementation of RxSync Service[SM]. A negative (though, not significant) relationship was observed between the number of patient-services and respondents' attitude toward implementation of RxSync Service[SM]. This may be because many respondents are already offering patient care services at their pharmacies, and they do not intend to adopt yet another service, despite the fact that RxSync Service[SM] is purported to alleviate workload. Similarly, current pharmacy services were also not found to be significantly related to respondents' likelihood to adopt RxSync Service[SM].

Directions for future research

Another prominent finding of the study is that, only 15.4% of the respondents indicated that they are likely to adopt RxSync Service[SM]. One of the possible reasons could be that simply a small percentage of respondents from the sample are highly entrepreneurial in nature, and those respondents were actually the ones who indicated a strong likelihood to adopt RxSync Service[SM]. This finding could also be attributed to a number of factors including respondents' sensitivity to the price of RxSync Service[SM] that was mentioned in the vignette describing RxSync Service[SM]

or their unfamiliarity with this type of service. Furthermore, it is possible that the results of study model 2 could have been more informative for RxSync Service[SM] if independent community pharmacy owners' willingness to pay for RxSync Service[SM] was measured. These objectives may be fulfilled through a study in a sample of local independent community pharmacy owners/partners in Mississippi. This future study can incorporate the idea of measurement of willingness to pay for RxSync Service[SM] along with some of the important determinants of adoption of RxSync Service[SM].

Implications and Conclusions

The current study has important implications for the developers of RxSync Service[SM]. Based on the information obtained about factors influencing community pharmacy owners' attitudes toward and their likelihood to adopt RxSync Service[SM], specific marketing strategies for RxSync Service[SM] can be formulated. Subgroups of pharmacists can be identified based on the factors recognized to be significant predictors of respondents' attitudes toward implementation of RxSync Service[SM] and marketing strategies can be tailored to each subgroup. The developers can organize workshops for pharmacists targeting the perceived barriers to implementation of RxSync Service[SM]. Developers can also make relevant modifications in the implementation manual that is provided to the pharmacists upon enrolment into RxSync Service[SM] by addressing the barriers to implementation of RxSync Service[SM]. Perceived benefit associated with RxSync Service[SM] was found to be a significant predictor of implementation of RxSync Service[SM]. For instance, the perceived benefit scale comprised of items related to perceived benefits such as generating additional revenue, increased numbers of patients, ability to compete with other pharmacies, improved patient health, improved relationships with physicians and role model for

other. From these, the developers can identify a subset of benefits that the respondents perceived as most beneficial and the ultimately tailor the marketing strategies for RxSync Service[SM] accordingly. Perceptions of the characteristics of RxSync Service[SM] were also found to be significant predictors of pharmacy owners' attitude toward implementation of RxSync Service[SM]. This suggests that the way in which pharmacy services are positioned to pharmacists in terms of addressing benefits and barriers may facilitate the implementation of pharmacy services. Although one's inherent entrepreneurial characteristics may not be something that can be necessarily changed, the results of this study may reinforce the idea that pharmacists may want to understand their own entrepreneurial characteristics and identify the related weaknesses and barriers that may prohibit them from advancing their practices. As such they can identify resources that will help them implement services such as finding the right support staff. The measures used for various constructs in this study may be used to study the attitudes and likelihood to adopt any other innovative pharmacy-based service.

Limitations

A pharmacist panel was used to collect data for this study, and a monetary honorarium was not provided (although participants will receive a final report of findings). There is a strong likelihood of self-selection bias occurring in this study, one of the limitations associated with use of a pharmacist panel for data collection. Furthermore, cross-sectional nature of the study precludes implying a causal relationship among variables. Inferences should be made with caution because of the cross sectional nature of the study design.

In addition, respondents may have overstated their entrepreneurial characteristics and workload perceptions. To assess this possibility, we included social desirability bias measure in

the study. However, the scale demonstrated low reliability because of which was limited in its ability to account for any social desirability bias that may have occurred in this study.

One of the major limitations of the study was pertaining to limited sample size in order to test study model 2 using binary logistic regression for analysis. Study model 2 examined the influence of entrepreneurial characteristics, perceptions of characteristics of RxSync Service^{SM}, perceptions of workload, current pharmacy services being offered and demographic characteristics of independent community pharmacy owners on their likelihood to adopt RxSync Service^{SM}. As per sample size calculations to conduct logistic regression, in the presence of five predictors in the model with two categories of the dependent variable, we should have had a sample size of at least 60 respondents for each category of the dependent variable; i.e. likelihood to adopt RxSync Service^{SM}. However, we had only 32 responses for the "likely to adopt" category for RxSync Service^{SM}. As rectification, multivariable linear regression was used for analyzing study model 2. For the purposes of multi-variable linear regression, an ordered categorical variable was treated as a continuous variable. There may be some errors associated with the use of an ordered categorical variable as a continuous variable, as this may interfere with the assumption of normality for conducting multi-variable linear regression.

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LIST OF APPENDICES

APPENDIX A

COVER LETTER

Dear Pharmacy Owner:

As part of my thesis requirements, I am conducting a survey to assess pharmacy owners' perceptions of a new community pharmacy practice model. Your response to this survey is vitally important for understanding if pharmacy owners are going to be receptive to this new service. The survey should take about 15 minutes of your time to complete. We greatly encourage you to participate.

[INSERT SURVEY LINK]

This study has been reviewed by The University of Mississippi's Institutional Review Board (IRB).The IRB has determined that this study fulfills the human research subject protections obligations required by state and federal law and University policies. If you have any questions, concerns, or reports regarding your rights as a participant of research, kindly contact the IRB at irb@research.olemiss.edu or at (662)-915-7482.

Thank you in advance for your time and support.

Sincerely,

Namita Joshi, BPharm
Graduate Student
The University of Mississippi
School of Pharmacy

Erin R. Holmes, PharmD, PhD
Assistant Professor
The University of Mississippi
School of Pharmacy

Donna S. West, RPh, PhD
Associate Professor and Chair
The University of Mississippi
School of Pharmacy

Benjamin F. Banahan III, PhD
Professor and Director
The University of Mississippi
School of Pharmacy

APPENDIX B

SURVEY INSTRUMENT

Section I: Demographics

Please provide information about you and your pharmacy

1. How would you describe your position in your community pharmacy? (Please check ONE only)

☐ Owner/partner ➡ GO TO #2

☐ Employee Manager/Assistant Manager ➡ GO TO THANK YOU PAGE

☐ Staff/Employee pharmacist ➡ GO TO THANK YOU PAGE

☐ Other (please specify) _____ ➡ GO TO THANK YOU PAGE

2. Are you: ☐ Male ☐ Female

3. What is your current age? _____years.

4. Which of the following best describes your race or ethnicity?

☐ African American/ Black ☐ Native Hawaiian/ Other Pacific Islander

☐ American Indian Alaska native ☐ White/Caucasian

☐ Asian/ Indian Asian ☐ Other (please specify) _____

☐ Hispanic

5. For how many years have you been actively practicing pharmacy? (please round to the nearest whole year)_____ years.

6. For how long have you been an owner/ partner? (please round to the nearest whole year)_____ years.

7. How many stores do you own?

8. On average, how many prescriptions does your pharmacy store fill per day (new and refills)? _____prescriptions/day. *(If you have more than one store, please provide the total for the store you consider to be your primary location)*

9. How many full time equivalent (FTE) pharmacists do you employ? *(If you have more than one store, please provide the total for the store you consider to be your primary location)*

10. How many full time equivalent (FTE) pharmacy technicians do you employ? *(If you have more than one store, please provide the total for the store you consider to be your primary location)*

11. In which state is your pharmacy located?

12. Which of the following best describes your *most advanced* pharmacy training? *(Please check ONE only)*

    ☐ BS in Pharmacy

    ☐ Pharm D.

    ☐ MS in Pharmacy

    ☐ Other (Please specify)

13. In which year did you graduate with your last professional pharmacy degree?

14. Which type of postgraduate training have you conducted? *(Please check ALL that apply)*

    ☐ Residency

    ☐ Fellowship

    ☐ Other (Please specify)

15. To what extent are you involved in key decision making related to implementation of new products or services for your pharmacy (ies)? Please answer on a scale from 1 to 5 where 1 = not at all and 5 = to a great extent.

16. What percentage of time do you spend in the following at your primary pharmacy (Add to 100%):

    Dispensing prescriptions: _____

    Communicating with patients: _____

    Conduct administrative work: _____

    100%

17. How would you rate the workload level for the following people or you

For You

☐ Excessively Low ☐ Low ☐ About Right

☐ High ☐ Excessively high

For staff pharmacists

☐ Excessively Low ☐ Low ☐ About Right

☐ High ☐ Excessively high

For pharmacy technicians

☐ Excessively Low ☐ Low ☐ About Right

☐ High ☐ Excessively high

18. From the list of pharmacy services provided below, please check the services that your pharmacy provides (check all that apply).

☐ Adherence Management Program

☐ Disease State Management Program (e.g. Diabetes, Asthma etc.)

☐ Disease State Education Program (e.g. Diabetes, Asthma etc.)

☐ Immunization service

☐ Medication Therapy Management

☐ Compounding

☐ Long-term care and/or assisted living dispensing

☐ Long-term care and/or assisted living consulting

☐ Durable medical goods

☐ Health screenings

☐ Pain management

☐ Smoking cessation

❑ Nutrition services/weight loss

❑ Others (Please Specify) _____

19. Does your pharmacy utilize (Please check all that apply)

❑ Automated dispensing

❑ Point of service dispensing system

❑ Interactive voice response system

❑ Text messaging

❑ Other (please specify)

❑ None

Section II: Independent community pharmacy owners' entrepreneurial characteristics

20. The following statements reflect specific personal characteristics. For each statement, please rate the degree to which you relate to the statement using the 7-point scale, with 1 representing "Does not describe at all" and 7 representing "Describes Me Perfectly"

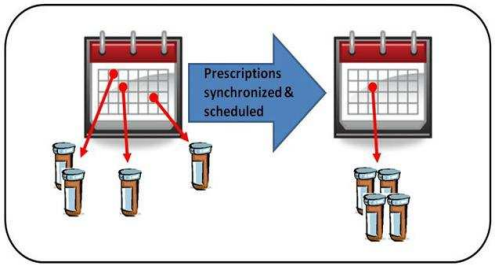
	Does not describe me at all						*Describes Me perfectly*
I always have a strong need to achieve in any endeavor	1	2	3	4	5	6	7
I empathize with my patients by being responsive to their problems	1	2	3	4	5	6	7
I have always wanted to be the "boss" (in top management)	1	2	3	4	5	6	7
I have strong desire to innovate my practice	1	2	3	4	5	6	7
I need frequent feedback regarding my endeavors	1	2	3	4	5	6	7
When it comes to making decisions, I am decisive	1	2	3	4	5	6	7
I have a high tolerance for ambiguity	1	2	3	4	5	6	7
I have a strong desire to plan for the future	1	2	3	4	5	6	7
I believe that making a contribution to society is important	1	2	3	4	5	6	7
I generally have positive attitude toward individuals with authority over me	1	2	3	4	5	6	7

I believe that new service development is crucial in carrying out the pharmacy's strategies	1	2	3	4	5	6	7
I like to work independently	1	2	3	4	5	6	7
Developing strong professional relationships is critical to my business	1	2	3	4	5	6	7
I am an extremely competitive individual	1	2	3	4	5	6	7
I am comfortable dealing with ideas, abstractions and concepts	1	2	3	4	5	6	7
I have a strong personal commitment to the business	1	2	3	4	5	6	7
I believe that face-to-face marketing is crucial to carrying out the pharmacy's strategies	1	2	3	4	5	6	7
I am comfortable using discipline to get people to perform as expected	1	2	3	4	5	6	7
I am extremely cautious when it comes to acting upon ideas	1	2	3	4	5	6	7
I believe that my destiny is controlled by circumstances that are beyond my control	1	2	3	4	5	6	7
I am uncomfortable with positions of high visibility	1	2	3	4	5	6	7
I prefer to work without guidance from others	1	2	3	4	5	6	7

Please carefully read the information provided below and respond to questions in section III.

Vignette

RxSync™ and RxSync Service℠ refer to an alternative community pharmacy management practice model that is beneficial for pharmacies, patients, prescribers, and others.

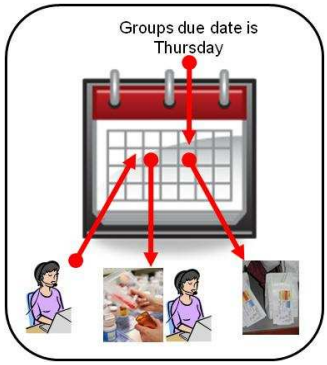


The core components of RxSync Service℠ consist of:

❶ The *synchronization* and *scheduling* of refills.

❷ *Monthly patient monitoring* for adherence.

❸ Providing *pharmacist consultations to patients* or *professional recommendations to prescribers* when needed.



Synchronization and scheduling make it possible for pharmacists to:

Be proactive rather than reactive about when prescriptions will be refilled – thus taking control of the pharmacy workflow.

Efficiently provide monthly medication management that improves compliance and enhances patient loyalty.

Reduce inventory costs by using just-in-time inventory management for RxSync™ prescriptions

Minimal resources will be needed to implement RxSync Service℠.

You can use your existing computer and office space.

A staff member will be needed to handle patient recruitment, patient enrollment, and monthly calls to patients.

There is a $4000 initial licensing fee associated with implementing RxSync Service℠ and receiving the implementation support kit, and a $400 annual licensing fee.

Section III: Perceptions of RxSync Service[SM]

The following items inquire about your perceptions of RxSync Service[SM] described above.

21. On a scale of 1-5, where 1= "Would be no benefit" and 5 = "Would be extremely beneficial", please rate the extent to which your practice site would benefit from providing RxSync Service[SM] in terms of …

	Would be no benefit				*Would be extremely beneficial*
Generating additional revenue	1	2	3	4	5
Bringing more patients into the pharmacy	1	2	3	4	5
Increasing ability to compete with other pharmacies	1	2	3	4	5
Providing similar services as other pharmacies	1	2	3	4	5
Improving patient health in geographic area	1	2	3	4	5
Enhancing relationship with physicians	1	2	3	4	5
Demonstrating a new role of pharmacies to public	1	2	3	4	5
Being a role model for other pharmacies	1	2	3	4	5

22. On a scale of 1-5, where 1= "No barrier" and 5 = "Significant barrier", please indicate if RxSync Service[SM] does not fit well with how a practice site is organized and may cause some difficulties. How would RxSync Service[SM] fit within your practice site in terms of …

	No Barrier				*Significant Barrier*
Staff	1	2	3	4	5
Financial Resources	1	2	3	4	5
Physical resources	1	2	3	4	5
Pharmacy workflow	1	2	3	4	5
Time	1	2	3	4	5
Mission of your pharmacy	1	2	3	4	5

23. Please check the best response for the following questions about RxSync Service[SM] on a scale of 1-5, where 1 = "Not at all Difficult" and 5 = "Extremely Difficult"

	Not At All Difficult				*Extremely Difficult*
How difficult would it be to set up RxSync Service[SM] at your practice site	1	2	3	4	5
If there is something that you don't know about RxSync Service[SM], how difficult would it be to obtain answers from someone else?	1	2	3	4	5
How difficult would it be to maintain regular workflow while having staff pharmacists learn about RxSync Service[SM]	1	2	3	4	5

Section IV: Attitudes toward Implementation of RxSync Service[SM]

24. Please rate the following comments that relate to implementation of RxSync Service[SM] in your pharmacy using a 7-point scale, where 1 = "Strongly Disagree" and 7 = "Strongly agree"

	Strongly Disagree						*Strongly Agree*
Implementing RxSync Service[SM] would be personally gratifying	1	2	3	4	5	6	7
RxSync Service[SM] would be financially rewarding for the pharmacy	1	2	3	4	5	6	7
I have the skills to implement RxSync Service[SM]	1	2	3	4	5	6	7
I have no desire to implement RxSync Service[SM] for my pharmacy	1	2	3	4	5	6	7
RxSync Service[SM] would allow my practice to grow and increase my patient market share	1	2	3	4	5	6	7
I have the management skills to implement RxSync Service[SM]	1	2	3	4	5	6	7
It is essential that we implement RxSync Service[SM] to succeed in future	1	2	3	4	5	6	7

25. Using a 5-point scale, where 1 = "Extremely unlikely" 2= "unlikely" 3 = "Neutral" 4 = "Likely" 5 = "Extremely likely"; Please indicate how likely are you to adopt RxSync Service[SM] in your pharmacy?

1 2 3 4 5

26. Have you heard about or adopted…

	Not heard	Heard but not adopted	Adopted
RxSync Service[SM]	❑	❑	❑
A program similar to RxSync Service[SM]	❑	❑	❑

If heard about any prescription management program, please specify its name _____

27. Please indicate your level of agreement with the following statements by checking the appropriate response (where 1 = "Strongly disagree" and 7 = "Strongly agree"):

	Strongly Disagree						*Strongly Agree*
I always try to practice what I preach	1	2	3	4	5	6	7
There have been occasions when I took advantage of someone.	1	2	3	4	5	6	7
I have never been irked when people expressed ideas very different from my own.	1	2	3	4	5	6	7
At times I have really insisted on having things my own way	1	2	3	4	5	6	7
I am always willing to admit it when I make a mistake.	1	2	3	4	5	6	7
I like to gossip at times.	1	2	3	4	5	6	7
I never resent being asked to return a favor.	1	2	3	4	5	6	7
I sometimes try to get even rather than forgive and forget.	1	2	3	4	5	6	7
I have ever deliberately said something that hurt someone's feelings.	1	2	3	4	5	6	7
There have been occasions when I felt like smashing things.	1	2	3	4	5	6	7

RxSync Service[SM] is an actual service developed by the Center for Pharmaceutical Marketing and Management (CPMM) at The University of Mississippi. **For additional information about RxSync for Pharmacies[TM] or the RxSync Service[SM]** please contact the Center for Pharmaceutical Marketing and Management, The University of Mississippi.

Phone: 662-915-7650,

or

Benjamin F. Banahan III, PhD benb3@olemiss.edu

Erin R. Holmes, PharmD, PhD erholmes@olemiss.edu

If you would want us to send you more information about RxSync Service[SM], please provide your contact information.

Name_____

E-mail_____

Phone #_____

Thank you for your help on this survey!

VITA

Namita Joshi was born on January 24, 1987, in New Delhi, India. After graduating from Delhi Public School, Vasant Kunj; one of the most renowned institutions in the country, she decided to continue with science as her major. She was awarded Bachelors' of Pharmacy (B. Pharmacy) degree from MSIP, Guru Gobind Singh Indraprastha University, Delhi, in 2008. Upon completion of her degree, she then completed a proficiency program in healthcare informatics from Bioinformatics Institute of India. In the meantime, she decided to pursue her higher education in United States.

Namita was admitted into PhD. program in the Department of Pharmacy administration at the University of Mississippi in August, 2009. During the first year of her graduate studies she served as a graduate research assistant at the Department of pharmacy administration under the guidance of Dr. West-Strum and Dr. Banahan. She worked on a few primary research projects that ignited her passion to pursue a study employing primary research methodology in her thesis. She served as a graduate teaching assistant during the second year of her graduate studies. After completing the coursework toward her Master of Science degree, she was given an opportunity to serve as a student research intern at Tufts Center for the Study of Drug Development in Boston. Currently, she has completed one semester's worth of coursework in her PhD. curriculum at the Department of Pharmacy Administration, University of Mississippi. In addition to developing an interest in primary research methodology, she has also developed a keen

interest in secondary database research.

Namita is also actively involved in student networks of organizations such International Society of Pharmacoeconomics research (ISPOR), Pharmaceutical Marketing Research Group (PMRG) and Indian Student Association (ISA).